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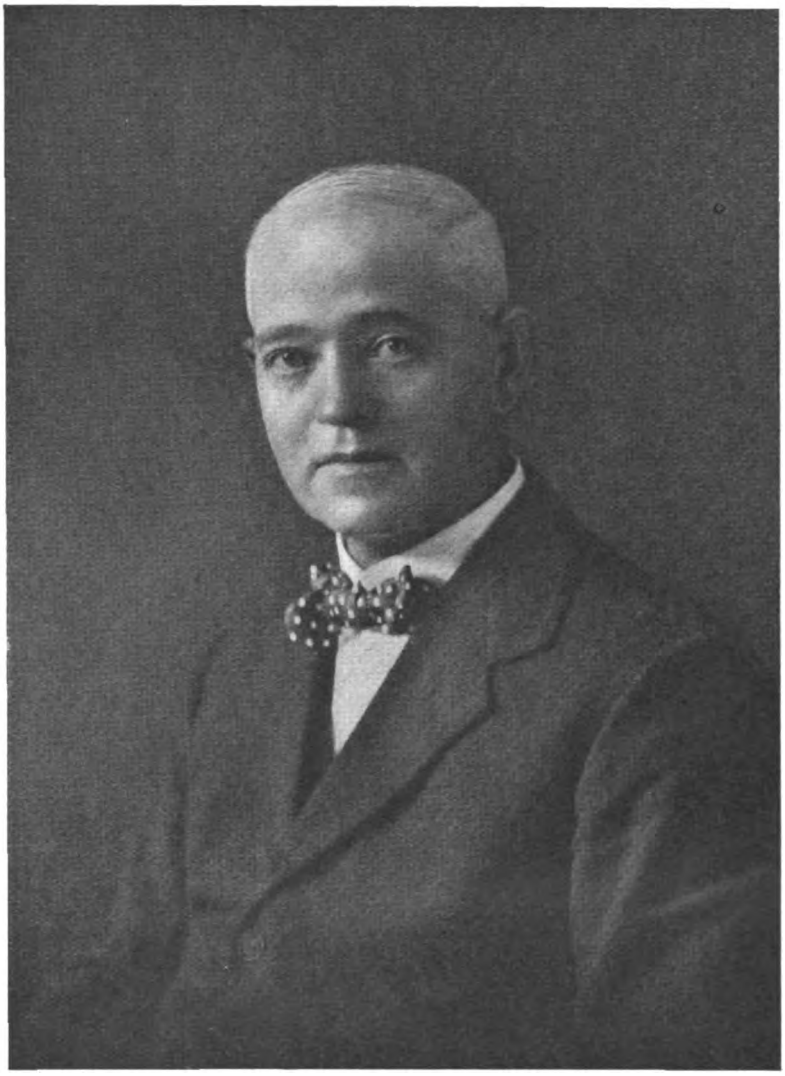
THIS (THE EIGHTY-NINTH) VOLUME OF "THE GARDEN"

IS DEDICATED, BY PERMISSION, TO

SAMUEL McGREDY, Senr., J.P.



IN the world of roses there is no name more respected than that of Mr. Samuel McGredy, Senior. The fame of his firm as raisers of new roses is world wide. He originally started hybridising as a hobby, and in 1905 exhibited his first gold medal variety, Countess of Gosford. Since then fifty gold medals of the National Rose Society have been awarded to his firm as the result of Mr. McGredy's personal work.

Mr. Samuel McGredy, Senior, is the senior partner of Messrs. S. McGredy and Son, but, unfortunately, during the past few years he has been unable to devote the same amount of time to business as he did in previous years, owing to continual ill-health. Still, he retains the greatest possible interest in all horticultural matters, especially in regard to roses. It is interesting to note that one of his earliest hobbies was fruit growing, and it is safe to say that he has been consulted by every fruit grower in the North of Ireland.

The list of roses that Mr. McGredy has raised is an imposing one. It is impossible to mention them all, but the following are known and admired the world over: Mrs. Herbert Stevens (1910), Old Gold (1912), Isobel, Golden Emblem and Modesty (1915), Flame of Fire and Christine (1916), The Queen Alexandra Rose, his first bi-coloured variety (1917), Mrs. Henry Morse (1919), Mabel Morse (1921), Florence L. Izzard, Mrs. Courteney Page and Vesuvius (1922.).

With such triumphs to his credit it is little wonder that the National Rose Society awarded Mr. McGredy the Dean Hole Medal for 1922, as a recognition of his work in roses.

We have much pleasure in dedicating this volume of THE GARDEN to one who has done so much to beautify and popularise the rose. All rosarians owe Mr. McGredy a great debt of gratitude.

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A CHRISTMAS PRESENT

THE other week I wrote a note on plants as presents. Now some unknown reader has taken me at my word and has sent me a Christmas present. It is a packet of seeds, and I found it in my stocking. They are wrapped in curious soft paper with hieroglyphics written thereon in some unknown foreign tongue. Perhaps the sender is a Russian, for as far as I can make out the writing reads 4291 SAMX SDNOMLA. I thought I knew all the shorthand as used by collectors, but this puzzled me. On the other hand, I am accustomed to slight difficulties in my research among the botanical treasures of the world. As this is a typical case, perhaps some of my readers might be interested in following with me to the conclusion I have arrived at.

First of all, I write down a short non-technical description of the seed. This is it:

"Semis embryo maturissima ovoido elipticale baso blunto apice acuto, in longditudine 2.563183 cm. in latitudine 1.000003 cm. Necessarius est crachulare cum ferocissimis dentibus; integumente tenuiore, rubro-nigra in colore, findetus cum passis rugis. Semis edulis est cum raro vetissimo porto vino."

This simplifies matters considerably if you know Latin; I know what it is not. There is no achenodium, a double achene, as the cremocarp of the umbelliferæ, therefore it is not an umbellifer. There was a short stalk attached to one of the seeds, therefore the plant might have been addicted to geoplagiotropism, which presupposes the fact that it was not a biennial. Under a microscope a section showed there were distinct signs of girder schlerenchyma, which does away with any hope that it might belong to the interesting family of scrophulareaceæ. In case these slight technicalities should bore some of my readers, I shall pass over numerous other interesting experiments as to what it was not and give a hint from which even a novice could name the family. I found that one of the seeds had a slight attack of protocollenchyma. After that it was easy; one after another experiments followed each other in rapid succession in my laboratory. I found that the tissue was kyanophilous, that the quaternary glands were quaquaversal, that zygosis was complete. If any reader has not guessed the family from my clear deductions, I will tell them. It was Rosaceæ.

But here I am stuck; until I have seen the heterocotylous growth I can get no farther. From my examination of the seeds under a microscope I have a very fair idea of the interior economy of the plant. It is only natural that I should, because I have dissected 80 per cent. of the seeds. The other two seeds I have sown in a pot, and here is where the microscopic examination helps: I know exactly the mixture in which to sow them. Two portions of dehydrated fluor spar, a dash of tar and two dashes of hydroxyethiltrimethylamonium hydroxide, and a little dynamite to give it a flavour. The seeds were dusted with arnica before sowing and well watered with weed killer. Now I am sitting back hopefully to wait for results. Meanwhile I have tentatively named the plant Sdnomla Hæmoglobini.

Thus was the first part of my task accomplished. The collector was the next conundrum. 4291 is obviously a collector's number: that is simple, but who was Samx. I cabled to my botanical friends throughout the world. In three days a reply came back from Professor Poppittinovitch of the University of Ekaterinberg: "Know him well, Samx is Samxzcitscz," and then it stopped. There may have been more, but no doubt the cable became overloaded and broke down. The rest was easy. I looked him up in "Who's Who in Botany" and found the following entry:

"Samxzcit, etc. Parentage and breeding doubtful, has followed the pursuit of botany since birth, experimented at an early age in the qualities of granular oats, quickly followed by marvellous perception in judging the nutritious value of wheat, flour, potatoes, etc. At the age of 18 tried the effects of datura, aconite and stramonium on his grandmother. Left suddenly on a botanical expedition to Mongolia where he has been ever since. *Works:* Poison and its Potentialities, Vegetable Alkaloids and their Lethal Doses. *Hobbies:* Surf-riding. *Address:* The Red House, Koko Nor. *Clubs:* The Koko-nor Athletic."

He must be a most talented man, but why should he send me seeds. Some ass at my elbow has just made the suggestion that if read backwards the inscription reads Almonds Xmas 1924. What a coincidence! E. H. M. C.

[The editorial part of the writer should have risen in wrath against the too prodigal use of Latin names in matters horticultural.]

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

THE CULT OF THE POLYANTHUS, by H. W. Canning-Wright.
TREES AND SHRUBS FOR AUTUMN FOLIAGE.
DOUBTS AND DISCOVERIES, by H. A. Greatorex.
WINTER SPRAYING, by A. J. Macself.
FORCING POTATOES, by William S. Rowles.

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NEW ZEALAND SHRUBS IN ENGLISH GARDENS

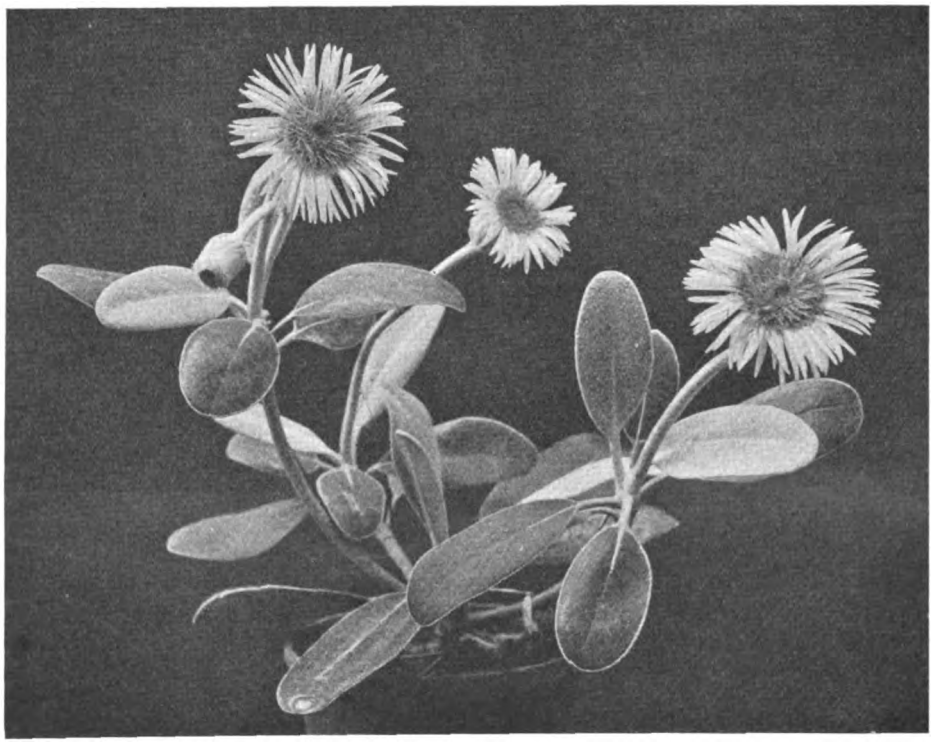
TELLS WHICH OF THESE VARIETIES FROM THE SOUTH ARE MOST SATISFACTORY IN OUR GARDENS.

SO much interest has been shown in New Zealand plants by present-day gardeners that Dr. Cockayne's valuable articles in recent numbers of THE GARDEN will surely add a further stimulus to their cultivation. Unfortunately, a great many of the plants mentioned by Dr. Cockayne are not at present obtainable in this country, but we must look forward with keen interest to their successful introduction.

The dominant feature of the New Zealand flora is the wealth of evergreen shrubs and trees, many of them beautiful in flower as well as in foliage. Many species and varieties of veronica, olearia, senecio and pittosporum are popular plants in British gardens, not only in Devon and Cornwall but all along our southern and western seaboard and in sheltered inland districts.

The following notes on various New Zealand plants (all of which may be obtained from English nurserymen) may prove of some interest to those who appreciate choice plants:

CORDYLINE AUSTRALIS.—The cabbage tree is one of the most distinctive shrubs in cultivation, but unfortunately it is only hardy near the coast. A strikingly sub-tropical effect is easily produced by grouping several cabbage trees with New Zealand flax (Phormium tenax), beschornerias, yuccas and similar plants with noble foliage. The cordyline resists gales wonderfully well and is seldom damaged by snow; when a leaf becomes laden with snow it gently bends down and shoots the snow off. They grow very rapidly in good soil and begin to flower when six or seven years old. The small white flowers are borne on a very large branching inflorescence and are deliciously fragrant. Cordylines flower freely in a spring succeeding a hot summer; after a dull, cold season there will be few flowers. Cordyline indivisa is a dwarfer species with much wider foliage of great beauty, but comparatively rarely seen in our gardens. C. Banksii is a smaller species, with long narrow leaves and quite as hardy as C. australis.



OLEARIA INSIGNIS, NOTABLE FOR ITS LARGE THICK LEAVES.

CLEMATIS INDIVISA.—This well known favourite of cool greenhouses is a truly glorious climber in districts where little frost is experienced and where it can be allowed to ramble through a large tree. Its great clusters of starry white flowers are borne in March and April and show up well against the thick evergreen foliage. It is easily propagated by cuttings inserted in a sand frame in June or July, or layers may be taken in pots.

PITTOSPORUM TENUIFOLIUM. — A magificent hedge plant for mild maritime districts. The rich green undulate leaves and black branches are very striking, and it bears clipping well. It soon forms a beautiful pyramidal specimen if allowed to grow naturally. There is a handsome silver-variegated form and several closely allied species. The flowers of most New Zealand pittosporums are small and purplish black; they would easily escape notice were it not for their strong honey scent, which is exhaled only at dusk to attract night-flying insects. Pittosporums come readily from seed and should be planted in their permanent position when still small.

RUBUS AUSTRALIS.—The " Bush Lawyer " is more strange than beautiful, but worth a place in the gardens of " the curious." In the leafless form the stems are armed with innumerable sharp prickles like tiny sharks' teeth. One can readily understand that it is easier to fall into its clutches than to get out of them—hence its popular name, bestowed on it by the colonists.

CARMICHAELIA and NOTOSPARTIUM are closely allied genera, usually known in this country as " pink brooms." Both are interesting but not showy small shrubs, though the individual flowers are very pretty when closely examined. Notospartium Carmichaeliæ is the better of the two, but Carmichaelia australis is rather more hardy. There is a rare dwarf species of Carmichaelia (C. Enysii) which is well suited to a nook in the rock garden.

CLIANTHUS PUNICEUS, " lobster-claw " or " red Kowhai," is one of the most gorgeous flowering shrubs in cultivation. It is said to be extremely rare in the wild state now, but luckily is very popular in gardens in New Zealand as well as in this country. The large pendent clusters of bright scarlet flowers nestling among the pinnate shining green foliage attract the attention of the least observant passer-by. A high south wall is the ideal position for a clianthus, but where this is not available it will succeed on an east or west wall. It is evidently a short-lived plant, and is liable to collapse suddenly without any obvious cause: luckily it grows very rapidly, and a healthy young plant will soon fill up the space left vacant. Seeds germinate easily but must be protected from slugs and mice, both pests being much addicted to the tender young shoots. Seedlings should be pot-grown until put in their permanent position, as they transplant badly. The white variety of the lobster claw is less striking than the scarlet type, but is none the less a lovely flower and well worth a choice position. During hard frost a light protection may save the clianthus from severe injury, but it must not remain covered up for long. Nearly allied to clianthus are the equally interesting yellow-flowered forms of Sophora tetraptera (often listed in catalogues as Edwardsia). This is the true " Kowhai " of the Maoris and has been chosen as the national flower of New Zealand. Sophora is somewhat hardier than clianthus and may be grown in the open in sheltered spots. The small leaflets vary greatly in number according to the age of the plant; in a young plant a leaf will be composed of about six pairs of leaflets, but the leaves of an old tree will consist of any number of leaflets up to forty pairs. S. microphylla is more frequently grown than S. grandiflora, but they are both splendid flowering shrubs for mild districts. Although almost evergreen, they frequently shed their foliage in early spring just before the flower-buds open. Kowhai timber is highly esteemed in New Zealand on account of its great durability.

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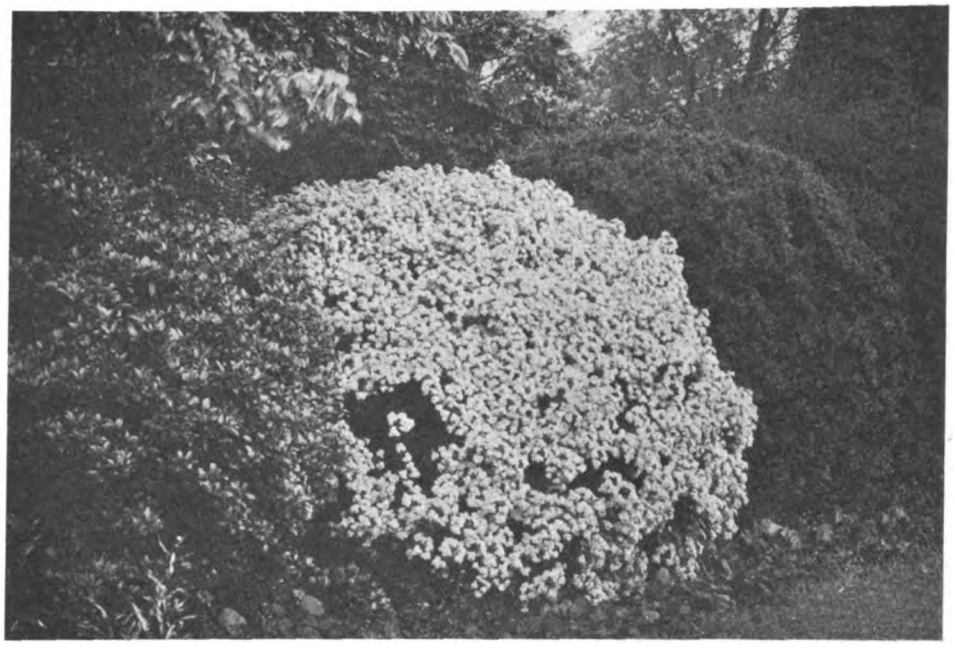
The handsome white-flowered LINUM MONOGYNUM is well known in English gardens and is often seen flourishing in sunny corners of the rock garden. It is a true flax and must, of course, not be confused with the totally different New Zealand flax (Phormium tenax), which belongs to the lily family.

POMADERRIS ELLIPTICA is a little known but charming small shrub for mild districts. A correspondent to THE GARDEN kindly sent me seeds from New Zealand a few years ago, from which I raised plants now about 5ft. high, which flowered freely last spring and are again well laden with buds. It is a curious habit of pomaderris to carry its flower buds all through the winter looking as though they would open any day. The flowers are yellow, individually small, but borne in such profusion that the plant appears smothered with blossom. There is another larger species sometimes met with, called P. apetala, but it has little beauty of flower and seems to me very inferior to P. elliptica.



THE MOST POPULAR AND BEST OF THE DAISY BUSHES, OLEARIA HAASTII.

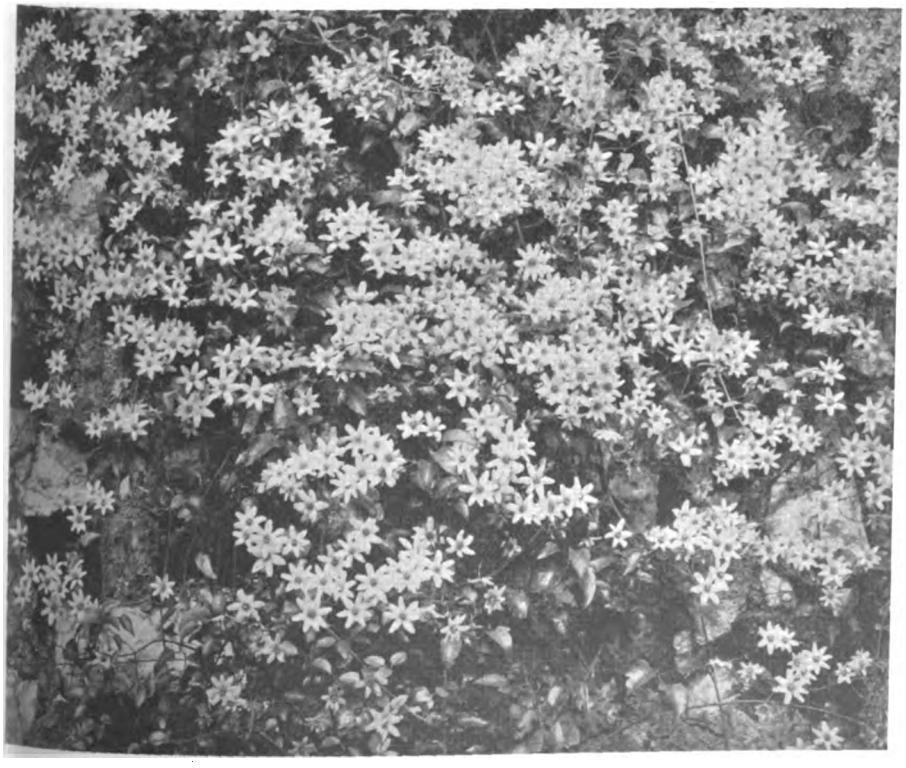
ELÆOCARPUS.—The two species of this shrub found in New Zealand, can only be grown in the most favoured British gardens, but are well worth a place in a cold house elsewhere for the beauty of their sprays of lily of the valley-like flowers and exquisite blue berries. I have tried seeds sent from New Zealand several times without success, but I believe cuttings can be struck in gentle heat.

HOHERIA POPULNEA (the lace-bark) is much hardier, and as it flowers in the open from August up to November its beautiful snow white flowers are particularly valuable. H. p. lanceolata is a variety (or perhaps a distinct species) with narrower leaves and flowering earlier in the season. It is equally beautiful.

PLAGIANTHUS BETULINUS is seldom grown, although it quickly develops into a very graceful and handsome tree, especially when covered with its small greenish blossoms in spring. Unless plants of both sexes are grown no seed will be produced, but if a male and female tree are near one another a crop of seedlings will probably appear beneath the female tree. Like most New Zealand shrubs, they should be finally transplanted when small. P. betulinus must not be confused with the Australian P. pulchellus, which is a very inferior species.

GAYA LYALLII is a well known and deservedly popular shrub; there are several distinct forms in cultivation and seedlings vary to a considerable extent. It is frequently grown against a wall, but in southern England, at any rate, it is quite hardy enough to be grown in the open.

HYMENANTHERA CRASSIFOLIA is another fairly familiar shrub which is occasionally grown as a low hedge. Its attraction, however, lies in the curious piebald berries which it carries in such profusion every autumn on the lower side of its branches. One wonders what object the plant has in view for concealing its berries so completely from the sight of passing birds.



ONE OF THE MOST BEAUTIFUL CLEMATISES, C. INDIVISA.

MYRTLES. — Some of the most beautiful of all New Zealand flowering shrubs belong to the family Myrtaceæ. The myrtles themselves are represented only by three or four species, of which Myrtus bullata is the most striking. The leaves are large (1in. or 2ins. long), reddish brown and curiously swollen between the veins. The flowers are much like the common myrtle, but the berries are red instead of black. It is not a very easy plant to establish and is certainly more tender than the much smaller Myrtus obcordata, which seems quite easy in a sheltered border.

LEPTOSPERMUMS (manukas or tea-trees of the colonist) take the place of the British gorse and broom on poor sandy soils. L. scoparium is now largely grown in this country, but does not seem to succeed far inland. In gardens where it thrives it makes rapid growth and is smothered with lovely white blossoms every spring. Hundreds of seedlings appear near the old plants and have to be weeded out ruthlessly or they would monopolise the whole garden. Very beautiful varieties of L. scoparium have been introduced of recent years, notably L. s. Nichollii with crimson flowers and Boscawenii

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and Chapmannii with large pink flowers, but these last seem more tender than the type.

METROSIDEROS (bottle-brush plants) are among the very choicest of all New Zealand trees, but alas! they can only be attempted outdoors in the Scilly Islands or the warmest Cornish gardens. Great trees of M. robusta and M. tomentosa ablaze with scarlet blossoms must be a marvellous sight, but M. lucida is the only species likely to succeed at all in most gardens. Although it is said to attain a height of 60ft. in its native haunts it does not get much opportunity here to show what it can do as a hard frost cuts back the young shoots severely.

FUCHSIAS.—None of the three fuchsias peculiar to New Zealand compares in beauty of flower with the South American species, but the little F. procumbens has long been a favourite for rock gardens and greenhouses, owing to its neat trailing habit and large purplish-red fruits. The flowers are not showy, but carry most beautiful blue pollen, a feature shared by its compatriot, the big Fuchsia excorticata. This attains the dimensions of a tree and is one of the few deciduous New Zealand trees. It seems fairly hardy in this country, but does not flower freely until it attains some size.

COROKIA COTONEASTER is an attractive small shrub with interlacing black branches, starred with small yellow flowers in early summer, followed by small red fruits. C. buddleoides is a larger shrub, less hardy and consequently seldom grown except in very mild districts. Griselinia is fairly often met with in seaside gardens where it stands wind and salt-laden spray well, but it cannot be called very handsome or distinct-looking as usually seen. In New Zealand the griselinias are valuable timber trees and are doubtless imposing subjects.

The HEATH family (ericaceæ) are not strongly represented in the Dominion, nor are those which do occur particularly noteworthy. Several species of gaultheria are found in both islands and are now becoming established in British gardens. A very handsome evergreen shrub which is sometimes grown here is Myoporum lætum, whose bright green shining leaves are full of translucent oil glands which give them a very striking appearance. The flowers are white with a lilac tinge, borne in clusters of from three to six. Solanum aviculare is a very quick-growing shrub which attains the height of 8ft. in a single season, but as it cannot resist more than a few degrees of frost it generally gets severely cut (if not actually killed) in winter. The violet flowers are very large for a solanum, and are followed by oval fruits the size of a pigeon's egg, which are said to be edible. Self-sown seedlings appear all over the garden where a plant has fruited, so that it is easy to replace when the old ones have perished.

The New Zealand VERONICAS are so numerous and variable a genus that it requires a specialist to determine them correctly. Many fine hybrids have been raised between various large-flowered species in beautiful shades of blue, purple and crimson.

The COPROSMAS are well represented in the New Zealand flora, but are seldom seen in this country. Some of them bear beautiful blue berries and appear to be quite hardy so that they would be desirable additions to our gardens.

Most of the OLEARIAS in cultivation in Britain are natives of New Zealand (O. Gunniana, however, is a Tasmanian). The praises of O. macrodonta and O. nitida have often been sung by West Country gardeners, and they are certainly the two most useful species. The popular O. Haastii is, of course, extremely hardy, but cannot vie with the others as regards beauty. O. insignis is, indeed, remarkable for the size of its broad thick leaves covered with a greyish bloom above and white beneath. O. semi-dentata with mauve florets is very charming, but, like many of the Chatham Island plants, seems to be more difficult to establish in many gardens than other olearias.

The shrubby SENECIOS are useful grey-foliaged plants of which S. Greyii is the commonest in cultivation. A much more striking representative of the compositæ is Brachyglottis repanda, which makes a very handsome shrub in the open in the West of England. The leaves are large and soft, dull green above, white beneath, as is the rule with so many New Zealand shrubs. It produces large terminal panicles of whitish flowers, especially after a hot season when the wood has been well ripened.

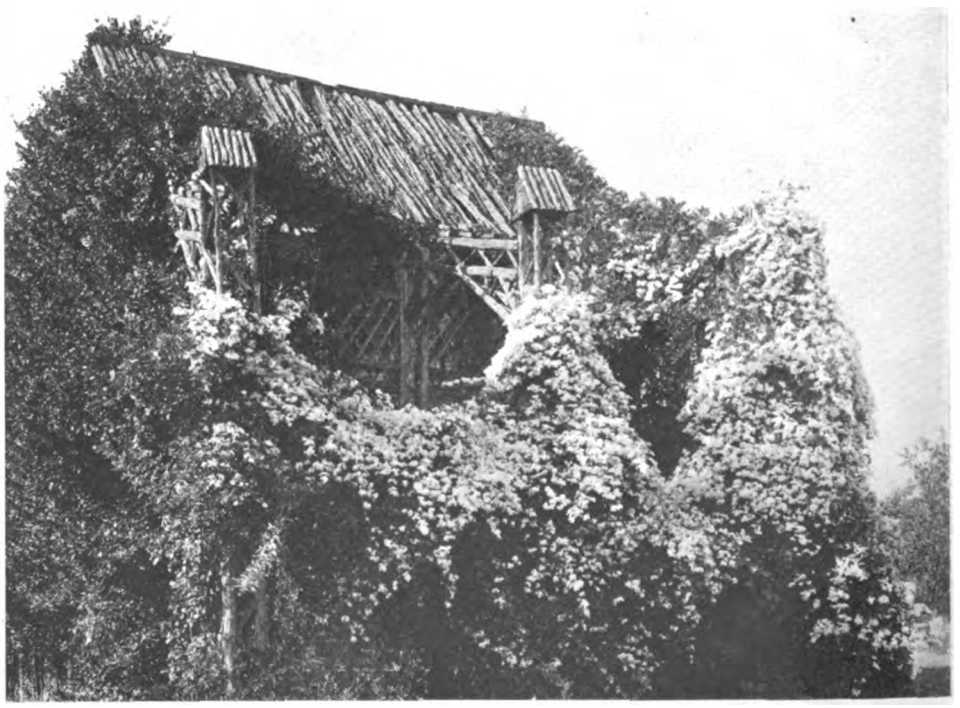
N. G. HADDEN.

A FINE CLEMATIS

BY E. H. WILSON.

ONE of the most beautiful plants that blossom in the autumn is the climbing Clematis paniculata, much too rarely seen in British gardens. Possibly England does not enjoy enough sunshine for this plant to give of its best, yet it is so beautiful that it ought to be given further trials and especially in the sunnier parts of the British Isles. On this side of the Atlantic it is one of the most popular climbing plants, never failing in the autumn season to put forth its flowers in countless thousands. A vigorous plant it will grow, full 30ft. or more, forming a thick tangle. Dark, lustrous green through the summer, and a garland of pure white through September, this clematis is to be seen in nearly every garden. In many places it has escaped and become naturalised. The flowers are pure white, delightfully fragrant, each about an inch across, and produced in paniculate clusters from the axils of the current season's growth. The three to five partite leaves are a dark lustrous green and from early summer to late autumn this plant is a thing of exquisite loveliness. Festooning pillars or porches or rocks, it is one of the most beautiful of hardy climbing plants.

A native of the Orient, C. paniculata was introduced into cultivation from Japan by the Russian botanist, Maximowicz, about 1864. The Arnold Arboretum obtained seeds of it from the Botanic Garden, Petrograd, in 1877, and the plants raised from these seeds were the parent stock of the many millions now grown in America.



CLEMATIS PANICULATA ON AN OLD SUMMER HOUSE IN MASSACHUSETTS.

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SAXIFRAGES NEW OR NOTEWORTHY

THIS IS ONE OF THE LARGEST OF ALL FAMILIES IN THE GARDEN, SO THESE NOTES BY A PRACTICAL GROWER SHOULD BE OF GREAT ASSISTANCE TO READERS OF "THE GARDEN."

MANY new varieties have been added to the various sections of this popular and important family of alpine plants. While some, though good, are not a great improvement on older and consequently better known kinds, others have proved to be of exceptional merit in more ways than one, and are especially fine when grown as specimens in an alpine house or cold frame, the former, of course, for preference. Such a convenience is not absolutely necessary, but with it perfection can really be attained and enjoyed to the full, particularly so with the Engleria and Kabschia sections, as inclement weather conditions so often prevail at their flowering season; birds and slugs also feed on the blossoms and mar their beauty to a considerable degree. Under cover these annoyances are overcome and the full beauty of both flower and foliage is brought out perfectly. The latter alone being a source of pleasure, perhaps more so at this time of the year when it is at its best. By these remarks I do not wish to convey an impression detrimental to the uses of such an accommodating family of plants in the rock garden.

SAXIFRAGA COTYLEDON PLATYPHYLLA is undoubtedly the giant of the encrusted group, having handsome rosettes almost 1ft. across when well grown. The leaves are very broad and finely toothed, while the immense arching stems, clothed with sprays of snowy white flowers, attain under good cultivation 4ft. to 5ft. in length. Flowering in June, they remain in perfect condition for weeks on end.

S. DR. RAMSEY.—Those who know this superb variety will, I think, agree that it is one of the best if not the finest saxifrages of its kind ever introduced. It is beautiful both in flower and foliage. The individual flowers are large and well formed, the colour being clear white with rich red spots. The spikes are about 1ft. in height, evenly balanced, without the rather dense heads so characteristic in some varieties of this section. Its whole habit leaves little to be desired, almost every rosette terminates in a beautiful flower-spike in June.

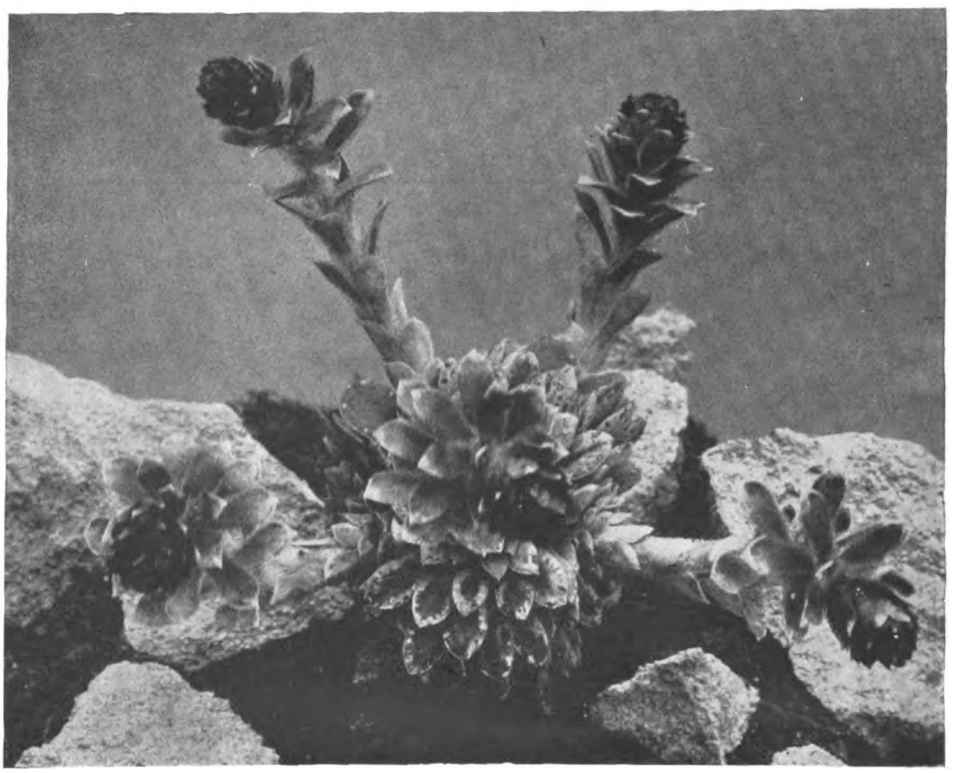
S. LONGIFOLIA.—This handsome species is too well known to dwell upon, but impossible to pass over. Suffice it to say that its symmetrical spikes of white flowers are exceedingly attractive, that is when it does condescend to throw up its spike, which it assuredly will in spite of one's efforts to prevent its doing so. Personally, I regret the appearance of such, for it means the loss of a specimen which with care will attain almost huge dimensions as far as this class of plant is concerned. In leafage no other member of the group is comparable. Fortunately, young plants of it are cheap and easy to procure.

S. FLORULENTA.—Owing to the recognised difficulty in the cultivation of this pink-flowering species from the Maritime Alps it is seldom seen. Naturally, no grower cares to admit defeat, and such a plant as this usually adds to his incentive to succeed. It is of importance to place it in a vertical position and at all times handle with respect. Bearing these two points in mind anyone hardened to these difficult creatures might reasonably hope to be successful.

The Kabschias have, I think, grown the richest of any section, and as these are of easy culture perhaps it is as well that it should be so.

S. HYBRIDA H. MARSHALL (Burseriana floribunda × lilacina) is the first of the new ones to flower here in the North, that is, about the middle of March, about the time that the well known Irvingi is past its best. The flowers are pale pink, of good substance, borne singly on erect 3in. stems above a dense grey-green foliage. Another desirable form from the same cross, called S. hybrida Gem, is very similar excepting that the flowers are much more reflexed and fully a fortnight later. The varieties Amitie (lilacina × dalmatica) and Etheline (Tombeana × Burseriana crenulata) are worthy of mention. With the introduction of these new hybrids by Messrs. Maurice Prichard and Sons of Christchurch the particular shade of pale pink first brought out in S. Irvingi has been considerably lengthened, a valuable asset where the decoration of an alpine house has to be kept in view.

S. ARCO-VALLEYI was sent us by Messrs. Tucker and Sons of Oxford, and is included by them among the Engleria group and described as a red hybrid, but the plant here is totally different, appearing nearer to the Kabschias with flowers of rich lilac, large, round and well formed on 3in. stems, the petals overlapping as in S. Faldonside and remain in perfect condition throughout April and well on into May, the colour improving with age. Undoubtedly it must be in the first dozen of a large collection here at Dupplin Castle.



ONE OF THE MOST STRIKING OF SAXIFRAGES, S. GRISEBACHII.

S. MYRA.—I can but endorse the general praise accorded to this remarkable cherry red hybrid, and I only hope that the form coccineum will turn out to be as stated, "an even richer form."

S. RIVERSLEA (Frederici-Augusti × lilacina) forms silvery hillocks of rosette-like growth and has flowers of a purplish hue early in February. A somewhat similar plant but with much richer flowers received an award of merit from the Royal Horticultural Society in March, 1923, and is called S. Valeria Keevil.

S. GRISEBACHII (WISLEY VARIETY) is to my mind the most handsome of the Engleria both in its foliage of hard silvery rosettes which on specimen plants measure 2½ins. across, especially beautiful in appearance. The flower-spikes, which appear in spring, are very striking and curious, clothed as they are with purplish crimson and green-tipped bracts.

J. T. HARRIS.

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SOME NEW ROSES OF 1923

BY HERBERT C. WETTERN.

A CRITICAL LIST OF ROSES OF 1923 WHICH HAVE BEEN TESTED IN THE AUTHOR'S GARDEN.

IT can well be argued that it is hardly a fair test of a new rose to try one plant of each variety, but at any rate some experience is gained thereby, even if the observation of a second year is essential to confirm one's first impressions.

Admittedly better, or more decisive tests can be made, for example, in the Royal Horticultural Society's Test Garden at Wisley, where half a dozen plants of each new variety are tried, and even better experience can be gained by the combination of the two efforts.

Variations in soils, in climate, in situation—all these factors admittedly can affect the results, and emphasise above all the advisability of making such tests in different places and under varied conditions. As an example, we find that Messrs. Alex. Dickson's roses from Newtownards make little success here as compared with the roses from their Marks Tey Nurseries. The latter, coming from a heavy soil on to our light sandy loam soil, always do well. The reason is not easy to explain, but it is a fact, nevertheless.

Our inglorious summer—if such it can be called—has been far from ideal for testing plants of any description—above all roses. The sun certainly shone in June, but thereafter it has almost been continuous wet throughout the country, a condition calculated of itself to damp the enthusiasm of the most ardent rosarian, while affording the poorest opportunity for the plant to put forth its best efforts.

The results, therefore, set out hereafter really form a record of observations made under these difficult conditions, and must be accepted as subject to future experience, producing evidence which will confirm, or even in some cases directly contradict, the tentative conclusions so far reached.

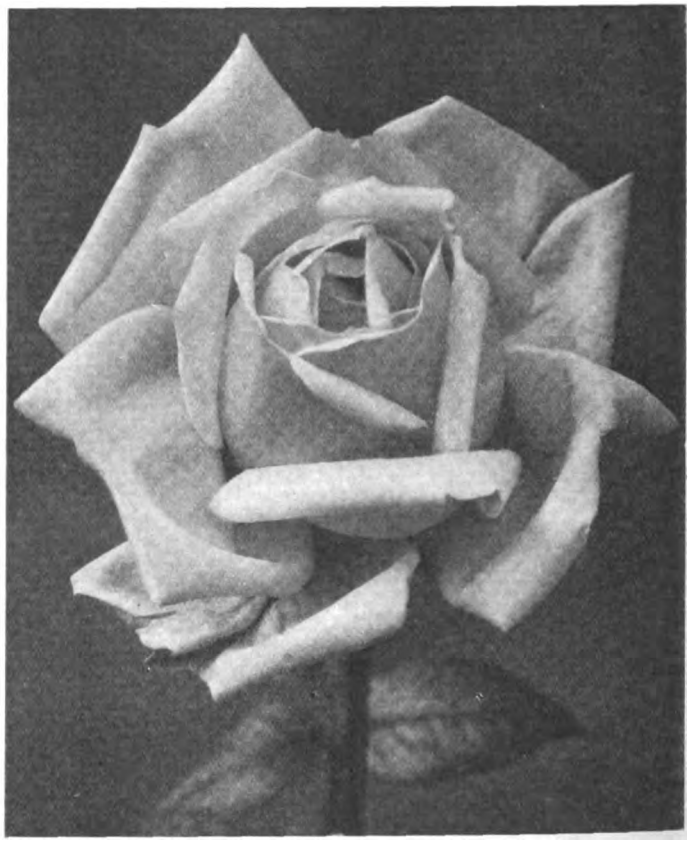
Barbara, H.T. (W. E. Chaplin).—Catalogued also as a pernetiana. Strong grower, free bloomer. Bright red blooms with yellow base, and yellow reverse of petals. Semi-single, height 18ins., foliage good. A very bright bedding rose and a striking novelty.

Betty Hulton, H.T. (Alex. Dickson and Sons).—Clara Curtis type. Nice habit with vigorous growth. Large pointed bud, clean yellow blooms, which open freely in all weathers. Height 15ins., dark foliage. An excellent new variety, suitable for massing in beds, and most blooms good enough for exhibition. A very promising rose.

Captain F. S. Harvey Cant, H.T. (Frank Cant and Co.).—Good grower. Blooms pale pink, hardly salmon as described, with yellow base. The blooms are large and of great substance, carried on erect stems. Height 18ins., large foliage. Should be an excellent exhibition rose, though perhaps rather heavy for a bedder. Gold medal N.R.S.

Captain Ronald Clerk, H.T.—Also catalogued as a pernetiana. Splendid grower. Although the growth sprawls, the blooms, being light, keep well off the ground. Wonderful vermilion red blooms with orange base. Height 24ins., good foliage, sweet scented, fine autumn blooms. An attractive garden and decorative rose.

BETTY HULTON, WITH CLEAR YELLOW FLOWERS.



A NEW CORAL PINK H.T., MRS. TRESHAM GILBEY.

Courage, H.T. (S. McGredy and Son).—Good growth, not too rank. Large blooms, dark red, described as similar to old H.P. Duke of Wellington. A good description, too, for colour and growth, but has a freedom of bloom as with the modern hybrid teas. Blooms are a good shape, large and full. Very fragrant, height 18ins., foliage good, large leaves, good autumn blooms. A very promising bedding rose.

Earl Beatty, H.T. (W. E. Chaplin).—Strong growth, but "stubby." Blooms are deep crimson, very fragrant, but discolour somewhat when old, and do not keep their shape well. Height 15ins., foliage, large leaves.

Evelyn Murland, H.T. (Alex. Dickson and Sons).—Growth none too strong and rather sprawly. Deep pink blooms suffused orange. Height 24ins., foliage good, small leaves, good autumn bloomer. Warrants another year's trial to try to get better growths.

Florence L. Izzard, H.T. (S. McGredy and Son).—Good growth, though somewhat thin. Free bloomer, very bright yellow blooms and pretty buds. Height 24ins., foliage good, good autumn blooms. It should make a magnificent bedding rose. Mr. McGredy set too high a standard with Golden Emblem and Mabel Morse and this is hardly equal to either for size or shape. Gold medal N.R.S.

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Hawlmark Scarlet, H.T. (Alex. Dickson and Sons).—Growth not very strong, or is it that Newtownards plants do not do so well on our soil as those from Marks Tey? Bright scarlet blooms, sweetly scented. Continuous bloomer, height 24ins., foliage good. Gold medal N.R.S.

Jacqueline, Hybrid Briar (W. E. Chaplin).—Also described as a pernetiana. Very strong bush, too big for bedding, more a shrubbery rose. Semi-double blooms, reddish copper, with yellow base. Splendid autumn blooms, big trusses. Free flowering, height 42ins., foliage good. Award of merit R.H.S.

Lady Dixon Hartland, H.T. (B. R. Cant and Sons).—Strong growth. Large blooms, deep shell pink colour, suffused orange, which last well when cut. Height 21ins., foliage good. A most promising bedding rose, giving splendid autumn blooms.

Lady Roundway, Pernetiana (B. R. Cant and Sons).—Strong, but stubby growth. Blooms not large. Clear copper chrome colour. Height, 15ins., good bronze foliage, continuous and free flowering variety, suitable for massing. Gold medal N.R.S.

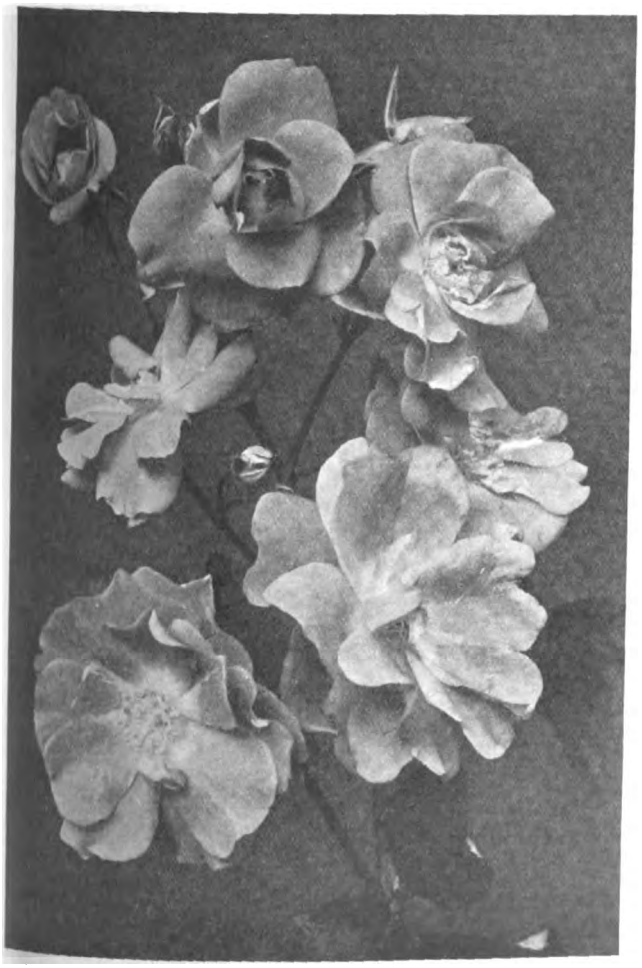
Lord Allenby, H.T. (Alex. Dickson and Sons).—Growth not strong. Scarlet crimson blooms, rather flat, though with plenty of substance. Height 12ins., foliage good. Must try it again in hopes of better growth.

Maud Cuming, H.T. (? Pernetiana) (Alex. Dickson and Sons).—Unfortunately this also has not grown strongly here. Blooms are pinky peach colour, so far not of much size. Height 15ins., foliage good, good autumn blooms. Recommended as suitable for exhibition, decorative and garden purposes, which we shall be better able to judge after another year's trial.

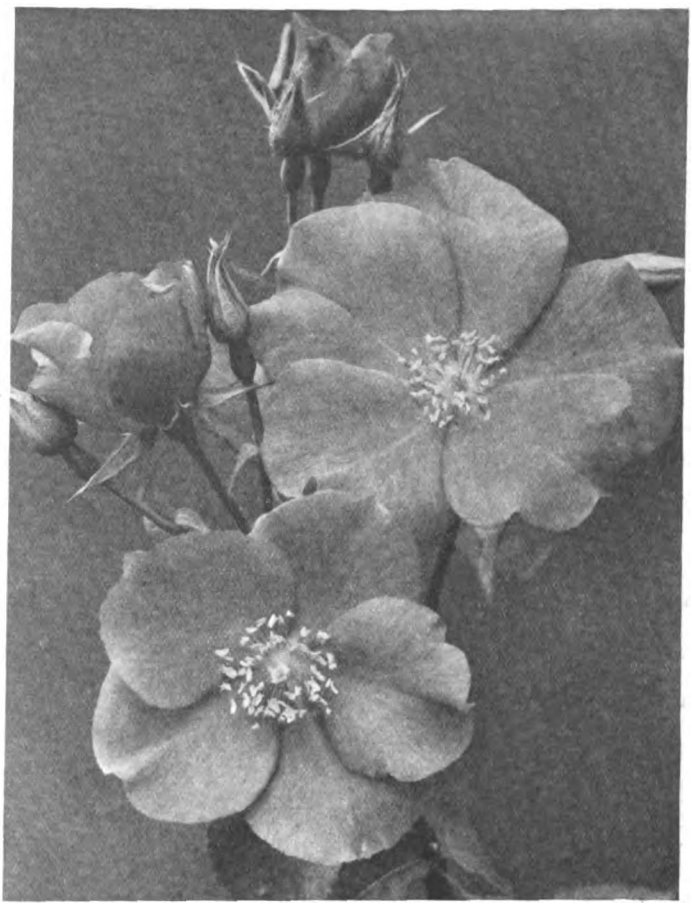
Mrs. Courtney Page, H.T. (S. McGredy and Son).—Strong growth and good shapely plants. Excellent buds. Bright blooms, cerise to carmine shade. All blooms come a good shape. Sweetly scented, height 21ins., foliage fair. Gold medal N.R.S. Claimed to be one of the most superb roses ever raised. *Nous verrons.*

Mrs. Tresham Gilbey, H.T. (W. E. Chaplin).—Very good growth, strong and erect. Long pointed buds resembling Admiration in colour. Blooms coral rose pink. Height 24ins., foliage good, good autumn blooms. Gold medal N.R.S. Although recommended for exhibition, it is hardly heavy enough.

Nur Mahal, Hybrid Musk (J. H. Pemberton).—Bushy growth. Wonderful mass of very profuse bloom. Pink blooms, which lose colour somewhat on maturity. Height 24ins., foliage small but good, splendid autumn blooms.



A VALUABLE AND PROFUSE HYBRID MUSK, NUR MAHAL.



VESUVIUS, A FRAGRANT AND VIGOROUS AUTUMN CROPPER.

Orange King, Dwarf Poly. (Wm. Cutbush and Son).—Growth good. A novel break of colour, orange, but not the colour of a rose. Inclined to break away from its true colour. Height 15ins., foliage good, good autumn blooms.

Rosabel Walker, H.T. (Frank Cant and Co.).—Shapely growth, making excellent bush, and would probably succeed well pegged down. Bright crimson blooms, fragrant, though flat, height 24ins., good autumn blooms. Awards of merit N.R.S. and R.H.S.

Salmon Queen, Dwarf Poly. (Wm. Cutbush and Son).—Growth like Orange King. Blooms slightly pinky-orange. Height 12ins., foliage good.

Scarlet Bedder, H.T. (Jersey Nurseries, Limited).—Origin, General McArthur × Hugh Dickson. Strong bushy grower, similar to General McArthur in shape. Scarlet blooms, but they blue off. Height 24ins., foliage good.

Sea Spray, Hybrid Multiflora (J. H. Pemberton).—Summer-flowering rambler. Strong growth. Poor blooms, pink and white. Height 30ins., foliage excellent, no autumn blooms.

Vesuvius, H.T. (S. McGredy and Son).—Shapely plants. First crop blooms none too free, but makes up for it with autumn crop. Single, scarlet crimson, good colour, and keeps its colour too. Very fragrant. Resembles Princess Mary, but darker. Height 24ins., foliage good. Certificate of merit N.R.S.

Foreign roses tried are as follows:

Asun Galindez de Chapa, H.T. (Ketten Frères).—Origin: Paul Lede × Jacques Vincent. Not a strong grower. Blooms rather small, but of a clean and pinky orange colour. Good autumn bloomer, but must be watched for mildew, height 18ins.

Amelie de Bethune, Pernetiana (J. Pernet-Ducher).—Good and neat growth, throwing up long shoots with excellent trusses of bloom. Blooms are large, bright coral pink colour and cupped in shape. Height 30ins., with bronze green foliage. Excellent autumn blooms, and should prove a good bedding variety.

Etienne Rebeillard, Pernetiana (J. Pernet-Ducher).—Hardly a strong grower. Blooms come semi-single of an ordinary pink colour. Height about 18ins., and the only redeeming feature about this variety is its excellent light green foliage.

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Insulinde, H.T. (G. A. van Rossem).—Origin: J. M. Jolles × Melody. Growth is good, but apt to sprawl somewhat. Blooms are not large and rather like Golden Ophelia, though a better shape. Bronze yellow colour, height 15ins., foliage dark and good, autumn blooms disappointing, as colour is lost and in a wet season are apt to fade almost to white.

Jan Steen, H.T. (Jan Spek).—Origin: Dora van Tets × Grüss an Dresden. Dumpy growth and weak. First blooms rather shapeless, resembling Dora van Tets. Autumn blooms were better. Height 12ins. Watch it for black spot, to which it seems liable.

J. Bienfait, H.T. (G. A. van Rossem).—Origin: Mme. Léon Pain × Red Letter Day. Good bushy growth. Blooms are semi-double, dark red colour. Height about 21ins., foliage dark green, but seems liable to mildew.

Yellow Bedder, Pernetiana? (G. A. van Rossem).—Origin: J. M. Jolles × Mme. E. Herriot. Very strong grower, making a big bush. Bloom proved rather disappointing, yellowish white, in large trusses. A fine weather variety, under which condition it blooms profusely, and the colour is a cleaner yellow. Height 30ins., foliage small, grass green colour.

Summarising, it is at least evident that there are some very promising new varieties, which have already demonstrated that they are real improvements on many which already exist, but, owing to the inconclusive character of the test, due to the really poor weather conditions, a clear judgment must be reserved until the results of another year's fair trial are known.

PROPAGATION OF NOMOCHARIS BY SEED

BY L. B. STEWART.

THE raising of this wonderful Liliaceous plant is one that has been of great interest in the Royal Botanic Garden, Edinburgh, and more so after a conversation with Mr. E. H. M. Cox, as he told me that the bulbs of this plant were found 2ft. or more deep down in the ground in its native habitat—so deep that it was a problem to know how the plant ever got down.

It is a well known fact among horticulturists that many bulbs have the power to raise or lower themselves according to their own requirements. But the movement in most bulbs is a slow process and it may take the bulbs years to adjust themselves.

In the year 1922 seed was sent to this country, and seed was presented to this establishment through the kindness of Mr. R. Cory. The seed was treated in two different ways. Two 4in. pots of each kind were sown and placed in a warm pit, the temperature of which was 58° night and 65°–70° day. After germination had taken place the pots were then removed to a cooler house with a temperature of 55° night, 60°–65° day, with a nice moist atmosphere which just kept the seedlings growing. When the seedlings were ready for handling the first lot was allowed to continue growing, nothing being done to the seedlings until the fall of the year when the young bulbils had gone to rest and when they were transferred to a specially prepared frame with about 7ins. of good compost and plenty of drainage. The second lot of seedlings on being big enough to handle were at once transferred to a frame specially prepared, and after pricking out, which consisted of putting into lines 4ins. apart—the seedlings being 2ins. apart—they were covered with sashlights and at night were covered with mats to prevent the temperature from falling too much, thus preventing a check in the growth.

The results of the two methods were as follows: The seedlings, which were kept in the pot until they had finished their growth, were very small but were uniform, and nearly every seedling was alive; whereas the seedlings which were handled when they were big enough were more unequal in size, the smallest being about the average size of the ones kept in the pot. There was, however, a fair proportion which had attained the size of planting out in the garden. The reason for the two distinct sizes in the pricked out batch being due to the soft nature of these seedlings and that many of the seedlings had got damaged in transferring from the pot to the frame. The seedlings which suffered were the small bulbs. In some cases the leaves were broken, in others the roots were knocked off, but in each case the result was the same. The seedlings which were undamaged were the bigger ones.

The results of this experiment were found on lifting the bulbs this October. As regards the depth these bulbs had travelled down into the soil, in the case of the seedlings which were planted out in the frame from the pot where they had been left until they had finished their growth, they were found at a depth of 3–4ins., the planting of the bulbils being 1in. at the back-end of 1922 and were of a uniform depth. The seedlings which were transferred from the seedling pot into the frame and kept growing were found to be very unequal in depth. The seedlings which were damaged had got down to a depth of 3–4ins., but the undamaged seedlings had got down to a depth of 8ins., and all the big bulbils were found down among the drainage. So that these seedlings had travelled from 1in. to 8ins. deep between the early summer of 1922 and October, 1924. Now this travel or movement of the bulbs caused me to look minutely into the matter, and I found that the big bulbs went on rooting continuously from the base of the bulb, and that when one root had attained its full limit of growth and had done all the pulling it could do, its place was again taken by another root, and so on. The bulbs had a series of roots at all different stages of development, but shortly after a root had attained its full growth it began to die, the dying taking place in nearly every instance from the tip to the base. Thus the bulb was enabled to absorb the food material, thereby increasing in size. In the smaller bulbs it is a little more difficult to see this system, but in the case of the larger bulbs the movement is quite apparent.

CORRESPONDENCE

INVESTIGATION OF WINTER THUNDERSTORMS 1925.

SIR,—In conjunction with the Meteorological Office, I purpose to continue, during this season, the annual record of winter thunderstorms hitherto made by Mr. C. J. P. Cave of Petersfield: this can only be carried out with the assistance of observers in all parts of the country. May I, therefore, ask if any of your readers would be good enough to send me, on a post card or otherwise, a note of any thunder or lightning which may be observed between January 1st and March 31st, 1925, inclusive?

A simple note of the date and time of the occurrence of thunder and lightning in any place and the direction in which the lightning was seen, especially at night, would be very valuable. Any additional information would be extremely welcome: as for instance:

(*i.*) An estimate of the severity of the storm.

(*ii.*) The time when the storm passed overhead, if it did so, and how long it lasted.

(*iii.*) Whether it was accompanied by rain, hail or snow.

(*iv.*) Direction and strength of wind; change of wind, if any.

(*v.*) Whether there was a change in temperature during the storm.

(*vi.*) Any other observation which may be of particular moment.

Reports from all parts of the country are desired, especially from Scotland, Ireland and the North of England.

On behalf of Mr. Cave, I should like to take this opportunity to thank very heartily those who last year made this investigation possible by sending their observations to him.—S. MORRIS BOWER, *Langley Terrace, Huddersfield.*

INTERESTING TULIPS.

SIR,—To all lovers of tulips Mr. Jacob's article on page 773 (November 15th, 1924) must have appealed. Never before were so many grown as now, and if observation counts for anything it is the Darwin that is most popular. He certainly sets our mouths watering by the glowing description of some of the latest, but I apprehend that the price will be prohibitive to anyone with a moderate purse, for a time. Catalogues do not often bring to our notice Sunset (rich orange), Whistler (deep blood red), Grand Monarque (plum purple), Auber (dark maroon), Rev. H. H. D'Ombrain (vermilion) or Arizona (also a plum purple). These are all old varieties, and were never, so far as my memory serves, very tall in price. I remember well Mr. Jacob sounding the praises of The Bishop, a wonderful large purple Darwin, but its price is prohibitive to-day to most people, enthusiasts of tulips though they be. This is not popular owing to the fancy price asked, which, as far as I am aware, is kept up. Mr. Jacob would assuredly have shone as a distributor of special tulips, as he places their merits

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before us in such a tempting way that one could scarcely resist making purchases!

He refers to the tulip mania. Many, of course, are aware that it occurred in the seventeenth century and was not confined to the Netherlands alone, but spread to France and Germany. It would, I think, be interesting to a number who are now taking up tulip culture to read an account of how the mania originated, and Mr. Jacob could tell the story in his own inimitable way.

I wonder sometimes whether Mr. Jacob, with his "inside" information from Dutch raisers, dare lead us to hope that we may one day see a deep yellow Darwin with the stamina and shape of Mrs. Farncombe Sanders?—CLAREMONT.

ORNITHOGALUM THYRSOIDES.

SIR,—In THE GARDEN of August 23rd, 1924, you published a letter about Ornithogalum thyrsoides, which I read with great interest, as I had one bulb of O. thyrsoides coming into bud at the time. I was watching it very carefully to see if it would perfect its flower or die in the bud, as it did last year. It has recently been in full bloom, a wonderful coppery golden colour, and so delicately beautiful that it was well worth all the care bestowed upon it. It is growing outdoors on a slightly raised bed of sandy soil, where it has been undisturbed for three years.—ELIZABETH LAW, *Wellington, New Zealand.*

WHEN IS A FLOWER MAUVE?

SIR,—May I be permitted to suggest that compilers of plant catalogues, people who write for the garden Press—in fact, gardeners in general—might be a little more discreet in their use of the description "mauve"? There is a growing tendency, and has been for some time, to call anything of a bluish lavender "mauve." Viola Maggie Mott, for example, is often described as being of that colour. Even the "periwinkle blue" of the vincas is called mauve by many. That this is wrong is manifest, for the word "mauve" is French for mallow, and means, as the dictionary tells us, "a mallow colour." We must, therefore, have a lot more red in the flowers we now call mauve if the latter term is to be used legitimately and much confusion is to be avoided.—A. T. J.

GENTIANA FARRERI.

SIR,—I enclose some photographs of Gentiana Farreri and G. sino-ornata, taken in my garden in Perthshire last autumn. The lilium growing with G. Farreri is Philippinense var. Formosanum, raised from seed ten years ago. Mr. Grove wrote me some time ago saying this lilium was not a success in the South as it always got damaged by early spring frosts. With me it does not show above ground before the beginning of May and thereby escapes spring frosts. I think it was in 1923 that "Formakin" wrote to THE GARDEN saying that he could grow Gentiana sino-ornata like a weed, but could not flower it. I asked him to send me one of his plants to see if I could flower it, which he did, but there is not a single flower on it this year. I sent him a plant from my garden and when I saw him last week he told me it had flowered splendidly with him. This is rather curious as we both got the gentian from the same source. This gentian was raised from seed in Edinburgh and first flowered there in 1912. Is it possible that some of the seedlings are blind? On looking at a large patch of the gentian which was planted in a bed in the rose garden at Edinburgh, I find a good few of the plants making strong growth, but no sign of flowering, the other plants which looked very healthy but not so strong-growing were all flowering. It would be interesting to know if any other person found this gentian to be blind.—A. H.

WELL FLOWERED PLANTS OF GENTIANA SINO-ORNATA.

EUPATORIUM WEINMANNIANUM.

SIR,—In THE GARDEN for December 6th, 1924, I was pleased to notice that Sir H. Maxwell, Bt., made a favourable reference to this useful and delightful plant. When on a recent visit to the Penzance district of Cornwall I saw several such specimens as described by Sir Herbert, they were in full bloom, and it is a shrub worthy of wider cultivation. Perhaps it is not so tender as we have been led to believe. Here at Castleford, Chepstow, the extreme end of Gloucestershire, it has been in the open for several years, and each September and October it produces its masses of pinkish white flowers. Cuttings will readily form roots either in the spring or about August. In addition to being so useful for outside, it also makes an excellent pot plant, and examples in pots 8ins. in diameter are very acceptable for the greenhouse or conservatory. When grown in pots good rich soil is needed, and when the receptacles are filled with roots liquid manure should be afforded about twice each week.—T. W. B.

GENTIANA FARRERI WITH LILIUM PHILIPPINENSE IN THE BACKGROUND.

CATALOGUE DESCRIPTIONS.

SIR,—Surely in his letter to you on page 823 (December 6th, 1924) Sir Herbert Maxwell misses the point of "Claremont's" letter. Sir Herbert lays it down that "any tradesman may reasonably expect a customer to know the sort of goods he wants to purchase," and if that is so, a bare list of plant names, with prices attached, would doubtless constitute the perfect catalogue. Such a list might suit connoisseurs, who possibly number five hundred all told in the kingdom; but it would be useless to the thousands who order their plants at random from catalogues and, consciously or unconsciously, are influenced by the printed descriptions of the various species and varieties. It is an axiom of the trader's faith that the more complete a catalogue can be made the better the business resulting from it, and there is already more than one instance of the truth of the axiom when applied to the nurserymen's trade.—AMATEUR.

THE SOUTHERN BEECHES.

SIR,—*Re* the excellent articles by Mr. Bean on the "Southern Beeches" (December 13th and 20th, 1924) He and other readers may be interested to know that a fine specimen of Nothofagus Betuloides is growing at "Kitlands," a Surrey place on the Leith Hill range close to the village of Coldharbour. The tree is about 35ft. high and perfect in symmetry. I first saw it twenty-one years ago and as it is now only a few feet taller than it was then, it would appear to be extremely slow in growth in this country.

As near as I can gather the age of the tree would coincide with the 1843 introduction by Sir Joseph Hooker, who was a frequent visitor to Kitlands in those days and who probably took the young plant there himself. I have never known this tree to produce seeds, and so far as attempts to propagate are concerned the boughs are too high to layer and cuttings have never succeeded. I once tried grafts on seedlings of common beech, they also failed.

The Kitlands specimen may be mentioned in one of the volumes of trees by Elwes and Henry. I remember, at his request, sending Mr. Elwes particulars of it some sixteen or more years ago.—S. W. PHILPOTT, *Holmwood.*

ROSA HISPIDA.

SIR,—One of the most beautiful single roses in cultivation is Rosa hispida. The sturdy, yet graceful, bristly stems are freely branched and during their flowering season form pillars of bloom a foot in width and 3ft. to 4ft. in length.

The flowers are borne at the ends of the lateral branches and are yellow at first, changing to creamy white, and from 2ins. to 3ins. across. The flowers much resemble those of R. Hugonis, but the foliage is very distinct from that species. R. hispida is also very hardy, whereas R. Hugonis growing alongside was badly cut during the past winter.

There appears to be some doubt as to the origin of this beautiful early-flowering single rose, which at one time was thought to hail from America, in which country it has not, however, been found wild, and its true home is thought to be Siberia.—E. M.

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NOTES FROM CONTRIBUTORS

THE WINTER-FLOWERING PERIWINKLE.

VINCA DIFFORMIS, as this plant is called, is very cheerful at this season, for it comes into flower about mid-November and "carries on" until spring. Being a native of Southern Europe, it is perhaps not quite hardy, and one will, naturally, afford a plant that blooms in winter a well sheltered place. The latter can easily be found in most gardens, for this species seems to delight in being under the protecting boughs of an evergreen, and it is an ideal woodland garden plant. Hard frost may, even in such circumstances, destroy the flowers, but the plant is so recuperative that a fresh crop will be produced as soon as the weather becomes milder.

This periwinkle has the same habit and appearance as V. major, but it is not nearly so aggressive as the latter can be. The flowers are rather smaller than those of the great periwinkle, and the lobes of the corolla are sharply pointed to one side. What the colour of the type species (if there is one) should be I know not, for V. difformis is variously described by writers of authority as having blossoms of "grey," "delicate mauve," "clear lilac" and "clean blue." One of my own plants has struck out for itself, for it is as white as a snowdrop in shade and suffused with the most delicate tint of starch blue in full sun, while another is a very pale washy lavender. Some writers differentiate between VV. difformis, acutiflora and media, but Mr. W. J. Bean ("Trees and Shrubs") appears to consider all three one and the same thing. The probability is that they are all geographical forms of the one species, some coming from Spain and Northern Africa, others from Italy and the eastern shores of the Mediterranean.—A. T. J.

THE TREE OF HEAVEN (AILANTHUS GLANDULOSA).

AMONG the many attractions of Paris are the fine trees which make her streets, avenues and boulevards a glory in the spring and places of welcome shade on hot summer days. The catalpa trees on the Quai d'Orsay are worth crossing the Channel to see in May; the splendidly grown chestnut trees in Avenue Henri Martin are lovely in spring and interesting in autumn, since several of them blossom again regularly in early September.

The beautiful trees of many varieties which are planted in the gardens which line the Avenue du Bois de Boulogne and those of the Champs Elysées (especially the magnolias of the Rond Point) are a delight all the year round.

Among the most interesting trees in Paris are the Ailanthus glandulosa which are planted on both sides of the Avenue de Wagram as well as in some of the boulevards.

These rival the plane trees as sturdy town-dwellers and are extensively planted in the streets of Continental cities. According to French authorities, they are extremely hardy in all situations, are content with poor soil, and bear intense cold and prolonged drought equally well.

The ailanthus is a native of Japan and China. In those countries it is planted round pagodas and temples, hence its name, which means "tree of the gods." The French call it "ailanthe" and "Vernis du Japon," and the Germans "Götterbaum." These trees grow rapidly and reach a great height, one of 60ft. being not unusual. The French top the lateral branches of the ailanthus every year, with the result that its trunk elongates and its branches spread out in an umbrella shape, thus giving a grateful shade in summer.

The wood is much used for furniture making. It is satiny in texture, yellow in colour and takes on a beautiful polish. The only insect which feeds on its leaves appears to be Bombyx Cynthia, and that but sparingly.

This constitutes another great advantage to the tree for ornamental uses, since its leaves are always healthy-looking. These are pinnate and are from 2–2½ft. long. They are formed of from ten to fifteen pointed leaflets, light green above and white beneath. The bark is a dark grey. The flowers are green and have an unpleasant odour. The fruit, a yellowish green samara, adds to the attractiveness of the trees in autumn. The leaves remain on the trees until the first severe November frost. Then the leaflets drop off suddenly all at the same time, leaving the bare petioles which remain on the trees for weeks longer.

A sugar is obtained by tapping the trunk of the tree. Some authorities aver that this is a cure for general debility, but there seems good reason to doubt this statement.

The Tree of Heaven is not extensively grown in England, which is a pity, as it would make a pleasing change to the everlasting plane trees in our great cities. Could not some of these trees be planted in the streets of the new settlements of hideous little houses and bungalows which are disfiguring some of England's most beautiful country?

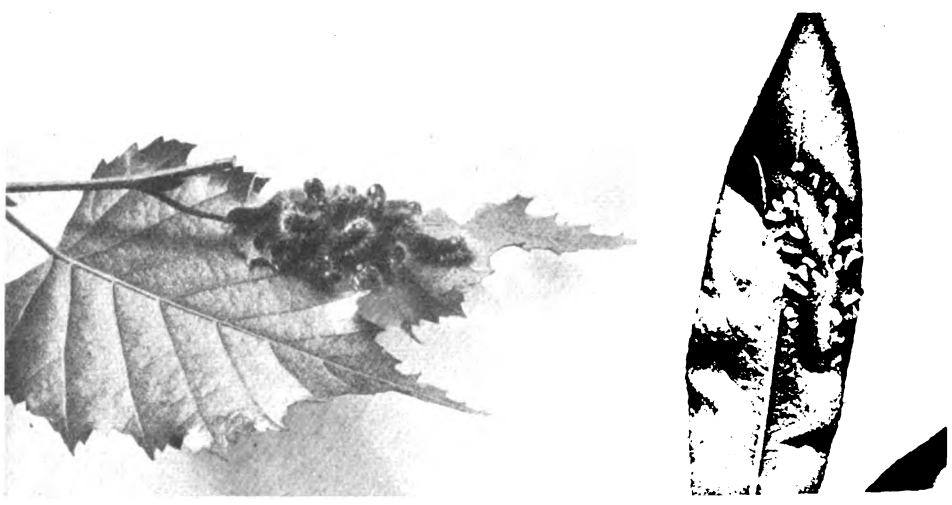
The ailanthus grows so fast—often one to two yards in a year—that it would soon tone down these hideous collections of buildings and by giving them its beauty deserve in another sense its name, "Tree of the Gods."—VICTORIA SLADE.

LILIUM MONADELPHUM.

HERE I have two varieties of L. monadelphum, which are wonderfully variable. The first of these expanded its earliest blooms on June 18th, while the other one, which has been longer in my possession, did not open much before the end of the same month. I have been more fortunate than many, as it was not long after removal to this garden that my bulbs began again to flower, resentful as they are of disturbance. In both cases I am thoroughly well satisfied with their conduct, and their beauty is so wonderful as to be a great pleasure for one to study. The first to flower I received as the variety Szovitzianum, I believe, but there seems to be so much confusion in both names and description that one becomes increasingly diffident in saying which is this form and which is the one called the type. In any case, these are truly charming lilies of most impress effective in the border, growing in some few places as much as 6ft. high and with well foliaged stems carrying a number of exquisite recurved yellow flowers of great substance. It is generally recognised that this is one of the most satisfactory of all garden lilies. One of our highest authorities on lilies advocates planting 5ins. deep, but the writer practises deeper planting than that, and has yet to learn that the shallower method is the better and more beneficial to the welfare of the plants. This old garden lily seems to have a liking for lime, but this is not essential. A good deal has been said about the spots on the flowers, and an endeavour has been made to discriminate between the plants with or without spots, but no satisfactory conclusion has been come to on the point. There is hardly, however, a really poor variety of L. monadelphum, and those who have it not will be well advised to procure it this season and plant it either in the mixed border, the lily bed or the front of the shrubbery, where it looks well against the greenery about it.—S. ARNOTT, *Dumfries*.

LEAF CATERPILLARS.

SIR,—Readers of THE GARDEN may be interested in the two enclosed entomological subjects which are herewith shown. One shows a group of buff tip moth caterpillars in their early stages of growth and the other a poplar hawk moth caterpillar from which



HARMFUL AND HARMLESS CATERPILLARS ON OUR NATIVE TREES.

ichneumon fly caterpillars have just emerged to pupate and eventually become perfect insects. Buff tip caterpillars are very destructive to birch, lime, willow and oak trees, and it seems a pity that the ichneumon fly had not missed the poplar hawk, as they are comparatively harmless. The "balance of Nature" appears to have gone wrong in this instance.—C. LACEY.

HELLEBORUS FŒTIDUS.

NO plant in the garden at this time can surpass in beautiful leafage that of our wild hellebore, and if for no other reason a few clumps are to be encouraged in the woodlands or the less important positions of a shrubbery. Helleborus fœtidus is listed to flower in March, but with the protection of shrubs and trees it will flower in February in any but the coldest of gardens. The flowers are not attractive as such, being of a greenish shade and unpleasant to smell; but, as above stated, the elegant leafage surrounding the bold 18in. high flower stalks is so striking that one quite forgets or is willing to overlook the less distinguished blossoms. Another wild species suitable for planting in woodlands is H. viridus.—C. TURNER.

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A WANDERER'S NOTE BOOK

THE VENETIAN SUMACH.

THE very splendid Rhus Cotinus pictured on page 613 last year (and also, as an unusual standard, on page 575) takes me again to the shores of Lake Garda, where it constitutes the undergrowth of the woods and reaches beyond the woods to the open lakeside. In his book, "My Garden in Summer," Mr. E. A. Bowles is querulous with the Venetian sumach, in that in England it did not produce its fluff-heads in such abandoned fluffiness as in its home on Lake Garda. The two photographs reproduced in THE GARDEN suggest that Mr. Bowles had been unfortunate, for Lake Garda has nothing finer to show. Is the sumach, whose blood scarlet leaves in autumn encarnadined two miles of the valley of the Roja near Tenda in the Italian Maritimes when Reginald Farrer was preparing his book, "Among the Hills," the same species? If so, the Garda woods in autumn must out-scarlet the Roja, even as the Roja was out-scarletted for Reginald Farrer by the alpine rhamnus on the Forcella Lungieres above Misurina in the Dolomites.

OLEANDERS ON LAKE GARDA.

The note from Greece (page 767, November 8, 1924) must excite the envy of the flower—and sun—worshipper. The description of the oleander growing wild on cliff faces reminded me of the beautiful pink splodges on the precipices at the northern end of Lake Garda last June, which, viewed from the boat through glasses, puzzled me as to the identity of this superb "rock bush" until a stray seedling or two, dropped from on high to the water's edge, came so close as to settle the question. With only slight exaggeration one might say that the entire lake is rimmed with an oleander circle, but the sub-spontaneous compact bushes of the limestone precipices were more charming, and an even greater feast of colour, than the more usual but more formal, regularly spaced standards.

NAMES.

What's in a name? To me, as a wanderer, a lot. I like a name to be descriptive. It aids the memory and charms by recollection. I had lief the great botanists of old had had more regard for the useful principle of association of ideas. But botany started before Pelmanism. The primula called Juribella demands no mental effort to recall its local habitation; and once the Giuribel Alp enters your memory you are there in your dreams, with the sweet savour of the mountain tang in your heart, the more poignant for the little bitterness that you may never roam its care-free turf again. If ever I am shipwrecked on the Balearic Isles (no other chance I imagine can take me there, unfortunately), I shall know that Primula acaulis balearica lives there—the white primrose of the Balearic Isles. The beautiful deep golden auricula whose leaves are brilliantly outlined with a clear-cut white *ceinture* is more fittingly "albo-cincta," more correctly "Bauhini." Who or when was Bauhin or Bauhinus, and in what way should so ugly a name conjure up so charming a rosette, which, when first you fall in with it in the Tombéa district, leaps to your eyes as albocincta, and requires no late burning of the hotel electricity over botanical tomes to arrive at its identification? Primula Balbisii is a mental strain, but P. auricula ciliata explains its own leathery auricula leaves with hairy fringes. P. marginata is, of course, the beauty of the Maritime Alps, with broadly-margined and indented leaves. When first you see P. minima, you know it can be nothing but the least in stature of all the primulas. You do not seek P. cottia elsewhere than in the Cottian Alps. P. Berninæ takes you at once to the magnificent clear-coloured viscosa of the Bernina, where you successfully seek it in the upper reaches of the Heuthal.

THE HYBRID GEUM RHÆTICUM.

I imagine that, with many of the hybrid saxifrages, their ease and greater beauty make them *personæ gratæ* to their august collectors; but, as the greatest of rock garden apostles would have written, their origin is for the most part "wropped in a myst'ry." The roses offer another noteworthy example—from among the geums—of the value of hybrids. In early July I had admired the quite impressive abundance, floriferousness, size of bloom and clear golden yellow colour of both Geum reptans and the more common G. montanum on the Pordoi Pass, halfway from Bolzano to Cortina; and on the Italian side of the Stelvio, G. reptans could not have been bettered. I knew of the existence of their offspring, G. rhæticum, and the Pordoi appeared a likely place whereon to fall in with it; but the search yielded nothing. Later, I was prospecting the vast rocky delta that stretches out between the Cambrena glacier and the Lago Bianco fronting the hospice and the railway halt on the Bernina Pass. My excuse is that owing to the damming of the lake for the enlarged electricity works near Poschiavo, it took an unconscionable time to outflank the lake. Also the season was late and there was little to show in the way of blossom. Yet again, I had spent a longish time encircling in wonderment a vast rock as high as a cottage and longer than many cottages, that was thatched throughout its length with Primula hirsuta just out of flower. Next time, if a little earlier, I shall break my journey to pay my respects to that rock. Wherefore, for all these reasons, I merely noted that the Cambrena delta was remarkable for abundance of Geum reptans, nearly all in seed, and did not pause on my way. It was not till the other day that, in re-perusing M. Correvon's "Flore Alpine," I was stabbed with the realisation that not only is the Cambrena glacier the richest known station of G. reptans, but also that all that G. reptans is the particular form of it known as G. rhæticum of Brügger. Both montanum and reptans are starred selections for the rock garden. 'Ware montanum's tendency in rich soil to go to leafy hummocks and little flowers. Of reptans it is enough to say that doctors disagree. Some say moraine, others say no; some say rich feeding, others sandy poor and stony soil—a grievous medley, for reptans is the bigger, finer bloom. But rhæticum, the hybrid, combines the ease of the one with the splendour of the other.

THE MEETING PLACE OF PRIMULAS.

Primulas (and other plants, like the mountain lilies), are strangely local in their distribution. One valley, one species, is only an exaggeration; and it is on the windswept cols that separate the valleys that you find the hybrids. It is on the top-most cols of Judicaria that you find the meeting-place of the European primulas. To continue my diatribe on names, does not "œnensis" lack all inspiration and meaning? But Primula villosa daonensis (disowned though the name be now), is at once a description and a guide to the Val di Daone; or "stelviana," equally denounced, would make you sure of catching the sunlit ruby flash of it on the rocks bordering the motor road just where it dips below the war-desolated Stelvio Pass on its coil-like way down to deep Bormio. Does the characterless name of P. Facchini resurrect at this date the memory of a forgotten botanist more than Porta's name of Magiassonica honours this primula's home in the Val Magiassone? P. Heerii is very nearly unpronounceable, but P. integrifolia gavarnensis gives you the entire-leaved primula of the Cirque de Gavarnie in the Pyrenees, for the photograph of which (on page 435 last year) I must not omit to compliment THE GARDEN. Who was Dumoulinius that he should give his name to a primula that Gusmus called fratensis (from the Frate di Breguzzo) or Valbonæ (from the Malga Valbonæ in the same district). Where then are these little-known valleys and cols of strange names? Once you leave Switzerland by the Stelvio gate you pass south-east through the Judicarian Mountains that cluster round the peak of Adamello, on whose high passes the species meet from the four quarters of the primula world—from the West, from the Bergamasque and Bernina Alps; from the North, from the Stelvio and the Austrian Tyrol; from the long Eastern lines that stretch through the Dolomites to Carniola, Styria and Idria; and from the South, from the famous Tombéa and over Lake Garda to Monte Baldo, the botanist's Mecca, and so to the uplands of Venice. The Stelvio, the Frate di Breguzzo, the Val Magiassone, the Malga Valbonæ, the Val di Daone and the Tombéa form the primula high road in early June through this little known territory. The long jagged crest of the Tombéa, whose primulas threaten to oust all other vegetation, makes a final mass effect with spectabilis and albocincta to a route that commenced on the Stelvio with glutinosa and œnensis.

E. ÉNEVER TODD.

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GARDENING OF THE MONTH

FLOWER GARDEN.

ANNUALS.—Double dig the site.

BULBS.—Keep soil round them well hoed.

HERBACEOUS BORDERS.—Tread the surface firmly round newly planted perennials after a thaw.

PROTECTION.—See that the straw has not become sodden, so excluding air from the roots.

SWEET PEAS.—Prepare site by bastard trenching a strip of ground. Add plenty of decayed manure in the second spit and a little in the first. Give a dressing of wood ashes within 6ins. of the surface and add 2lb. basic slag and 1lb. of kainit for every 30ft. of the trench.

FRAMES.—Ventilate carefully, protect with mats, water plants only when dry.

HARDY FRUIT.

BLACK CURRANTS.—Cut back hard one year old bushes.

FEED liberally with a mulch of manure fruit trees and bushes in full bearing.

PESTS AND DISEASE.—Continue spraying with caustic alkali or Woburn wash. Paint any wall fruit infected with American blight with a solution made by dissolving 4oz. of soft soap in a gallon of hot water and adding 1oz. of carbolic acid. Treat small attacks of American blight with this liquid and apply with a stiff brush.

PLANTING.—Continue with bush fruit in good weather.

PRUNING.—Continue whenever possible. Dress with tar the surface of any large cut. Burn prunings, mix ashes with loam and manure and return to the soil as a top-dressing.

RASPBERRIES.—Mulch bed at end of month with farmyard manure.

ROOT PRUNING.—Finish soon.

SOIL.—Prepare site for wall fruit. Drain the soil by placing a layer of broken bricks at a depth of 3ft.

VINES.—Prune and paint with Gishurst's compound. Top-dress the border with a compost of loam, mortar rubble and bone-meal.

VEGETABLES.

GENERAL.—Continue trenching and double digging the ground. Give a dressing of quick-lime to the soil.

BROAD BEANS.—Sow on a warm border.

CELERY.—Protect by covering ridge with dry straw.

POTATOES.—Set in an upright position in trays a sufficient number for early supplies. Place for sprouting in a light frost-proof shed.

SHRUBS AND TREES.

CLEAR from shrubberies and from under trees all leaves and dead wood.

PLANTING.—Finish in good weather.

PROTECTION.—Examine. Continue to cover tender climbers and shrubs during bad weather.

GENERAL WORK.

RECONSTRUCTION.—Continue the work.

LAWNS.—Finish re-turfing and draining. Brush regularly and roll once a week.

STORE loam, manure and peat moss litter.

WALKS.—Roll, renovate and weed. Examine drainage.

FLOWERS UNDER GLASS.

ANNUALS IN POTS.—Give final potting in 6in. or 7in. pot. Compost 2 parts loam, 1 part cow manure, 1 part leaf-soil and 1 part sand. Water with care after potting. Feed well with liquid manure.

ARUMS.—Feed continually, using weak doses of soot water and cow-manure. Give guano or Clay's fertiliser occasionally.

BEGONIAS.—Stake Lorraine type and keep a temperature of 60° at night. Take tings of this kind. Sow tuberous-rooted summer begonias at the end of the month. Use shallow pans and very fine soil. Sterilise the soil with boiling water before sowing. Mix seed with sand, scatter thinly and do not cover. Cover pans, shade and place in a temperature of 60° at night. Start old tubers at end of January in boxes 3-4ins. deep. Just cover the bulbs and put in a warm moist temperature.

BOUVARDIAS.—Feed well just before flowers open.

BULBS.—Bring into the house from the plunging ground as they are ready. Gradually raise temperature to 60° at night. Keep in darkness for a short while. Dry off gradually those which have finished flowering and stand in frames.

CALCEOLARIAS.—Give final potting at the end of the month. Put a little charcoal over the crocks. Do not bury the basal leaves. Dust with tobacco powder and guard against green fly. Water very carefully after potting, for if the new ball of soil becomes saturated the roots will not take to it.

CARNATIONS.—Strike cuttings, taken from the middle of the plant, round the edge of pots. Use a compost consisting chiefly of sand, and press firmly. Put in a mild propagating case with bottom heat. Pot up immediately they are rooted. Guard against damp.

CHRYSANTHEMUMS.—Continue to take cuttings. They do not requite bottom heat. Place in a propagating case, and remove condensed moisture daily off the glass. Pot up early struck cuttings in a compost of 2 parts loam, 1 part leaf-soil and little sand. Place them in a temperature of 50-55° Fahr. at night.

CINERARIAS.—Pot on in a compost of 2 parts loam, 1 part leaf-soil, 1 part cow-manure and plenty of sand. Dust undersides of leaves with tobacco powder if green fly present. Keep down attacks of leaf-mining maggot by killing the grub.

CYCLAMEN.—Prick off from seed-pans into boxes, water carefully and keep on the dry side and in a temperature of 50-55° at night.

DIELYTRA SPECTABILE, POLYGONATUM MULTIFLORUM AND DORONICUM.—Pot up and bring into a warm house for forcing. Increase temperature gradually to 55° at night.

EUPHORBIA PULCHERRIMA.—When flowers have finished put pots under staging for a period of rest. Give drier conditions to those coming into flower and protect from cold draughts.

FREESIAS.—Dry off after flowering.

FUCHSIAS AND HELIOTROPE.—Take out resting plants, pot up, bring into heat, syringe, and take cuttings from the ensuing growths. Give a little bottom heat to cuttings.

GLOXINIAS.—Pot up those started in leaf-soil last month.

HYDRANGEAS.—Repot old plants. Bring young plants in batches into gentle heat, water and give a moist growing temperature. Compost for potting fairly rich and containing no lime.

LILIUMS.—Top-dress L. longiflorum with dried cow-manure and sifted soil. Raise temperature to 55° at night if required early. Pot up L. auratum and L. speciosum and place in a frame. Put three bulbs in each 9ins. pot, and only half fill the pots. Do not water until the roots have started.

LILY OF THE VALLEY.—Bring in for forcing another batch from the plunge.

PELARGONIUMS.—Increase the temperature of summer-flowering varieties. Pot on when necessary.

SEEDS.—Sow in pans gloxinias, lobelia, streptocarpus, salvias, verbena, etc., and at the end of the month, antirrhinums. Shade, protect from damp and insects, and remove cover when germination has taken place. Sow sweet peas in boxes. Warm temperature needed for all these.

SWEET PEAS.—Pot up those sown in the autumn, and stake with small twigs.

FRUITS AND VEGETABLES UNDER GLASS.

FIGS.—Start now. Well water the borders. Close the house for ten to fourteen days. Keep temperature low at first, gradually raise it to 45° at night, and then ventilate a little. Syringe twice daily and damp down the walks to induce the buds to break.

MELONS.—Sow singly in 3in. pots after soaking the seeds for a few hours. Plunge in a brisk propagator with a bottom heat of 80°.

PEACHES.—Start now. Treat as advised for figs. Temperature must not be too high at first, otherwise the growths come away before the flowers, and when the flowers open they drop off. As the flower buds show signs of bursting discontinue syringing, and raise the temperature to 50-55° at night. Ventilate cautiously.

STRAWBERRIES. FORCED.—Water carefully those coming into flower, and pollinate artificially. Temperature 45° at night. Give air whenever possible, unless the temperature outside is below 32°. Leave eight to ten flowers on each plant, place in a light airy position. Feed continually with a quick-acting manure until fruit begins to colour. Bring in for forcing from the plunge another batch to form a succession.

VINES.—Start early vines. Give a good watering and close the house for the first week. Tie down horizontally rods of young vines in order that the lower buds may start into growth at the same time as the top. Syringe and damp down. Second week, raise temperature to 55° at night and ventilate a little. Prune hard back young vines struck last year. Insert vine eyes in 3in. pots in a compost of 3 parts fibrous loam, 1 part sifted lime rubble, 1 part leaf-soil. Put sand at the base of the eye. Plunge in a propagating case with bottom heat.

CARROTS.—Sow shorthorn varieties on a hot bed.

CUCUMBERS.—Sow in 6in. pots in a rich friable compost of loam, leaf-soil and old mushroom manure. Put eight to twelve seeds in each pot and cover with ½in. of soil. Place in a propagating case and remove to a cooler position when growing well. Transplant when the first pair of leaves is formed.

DWARF BEANS.—Sow in pots in a temperature of 60-70° at night. Half fill the pots with moderately rich compost. Top-dress when seedlings 3ins. high. Pinch the growing point of those sown last month and keep the atmosphere warm and humid.

MUSTARD AND CRESS.—Sow each week in boxes. Scatter seed, but do not cover. Place a piece of slate over boxes until seed germinates.

ONIONS AND LEEKS.—Sow early this month in boxes in a temperature of 65-70° at night. Cover with glass and shade with brown paper.

PEAS.—Sow in boxes every fourteen days, using different varieties each time in order to form a succession. Soak the boxes and place in a heated pit or cool house. Guard against mice. Smother seed with red lead and paraffin before sowing. When germinated remove to cooler quarters.

POTATOES.—Plant in frames on a hot-bed for early supplies.

SEAKALE, RHUBARB AND ASPARAGUS.—Bring in for forcing.

SUMMER CABBAGE, CAULIFLOWER AND LETTUCE.—Sow in boxes, add lime to the compost and germinate in a moderate temperature.

TOMATOES.—Sow main-crop in mid-January, in a temperature of 60° at night. Use a sandy compost with a little lime added, and have the boxes well drained. Cover and shade until germinated. Pot up early-sown batches.

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SIMPLE GARDENING

CLEANING AND TYING PEACH AND NECTARINE SHOOTS.

TREES grown under glass are more liable to attack by insect pests than those grown in the open air, Although the former are, really, under control they are not, in many instances, kept so. During the summer months constant syringing is necessary to keep in check the green and black aphides —mostly the latter—that infest the leaves, also red spider and thrips. But perhaps the worst enemy is the brown scale and summer syringings will not have any effect on them as they thrive where clean water is applied. The present is a good time for cleaning the branches where scale is found on them. Insecticides, as advertised, may be used or a solution of soft soap and sulphur. Three ounces of the former and two ounces of the latter boiled gently for thirty minutes in one quart of rain water, will answer our purpose. Use this liquid at the rate of half a pint to a quart of clear water on the old wood only. It must not be smeared on the young buds; usually, the current year's shoots are free from scale. Apply with a stiff brush and finish the work by thoroughly syringing the branches with clear water. Remove the surface soil from the borders and lime-wash any walls. The fruits are borne on the current years shoots, these should be tied in 4ins. apart near the bottom of each tree, leaving the shoots farther apart near the centre as the centre always fills up during the growing stages. Use soft raffia or other tying material.

A USEFUL SOWING TABLE.

This simple table shows at a glance how many of the principal vegetable seeds a cultivator should order, at once, for stocking a small suburban garden.

Kind.	*Quantity of Seeds.*	*Sown in Drills or Broadcast.*	*Approximate Space Sown.*
Artichokes (Globe)	1oz.	In drills	100ft.
„ (Jerusalem)	1 peck	Tubers in drills	50ft.
Asparagus	1oz.	In drills	75ft.
Beans (Broad)	1 quart	„ „	80ft.
„ (Dwarf)	1 pint	„ „	50ft.
„ (Runner)	1 quart	„ „	150ft.
Beetroot	1oz.	„ „	40ft.
Broccoli	½oz.	Broadcast	1,000 plants.
Brussels Sprouts	½oz.	„	1,000 „
Cabbages	½oz.	„	1,000 „
Carrots	1oz.	In drills	100ft.
Cauliflowers	——	——	1,000 plants.
Celery	½oz.	In boxes	1,000 „
Cress	1 pint	Broadcast	Thickly sown.
Cucumbers	1 packet	In pots	Six plants.
Endive	1 packet	In boxes	1,000 plants.
Kale	½oz.	Broadcast	1,000 „
Leeks	1oz.	In boxes	1,000 „
Lettuces	*See* Endive.		
Mustard	*See* Cress.		
Onions	1oz.	In drills	200ft.
„	½oz.	In boxes	500 plants
Parsnips	1oz.	In drills	100ft.
Peas (Early)	1 pint	„ „	50ft.
„ (Maincrop)	1 pint	„ „	60ft.
Potatoes (Early)	150 sets	„ „	One square rod.
„ (Maincrop)	100 „	„ „	„ „ „
Salsafy	1oz.	„ „	100ft.
Savoys	*See* Cabbages.		
Shallots	300 bulbs	In rows	One square rod.
Spinach	1oz.	In drills	100ft.
Turnips	1oz.	„ „	200ft.
Vegetable Marrows	*See* Cucumbers.		

PLANTING ROSES UNDER GLASS.

Roses are more generally grown under glass now than even ten years ago, because, so grown they are better understood; there are more suitable varieties —those having long, stiff flower stems— and they are more popular, even. In a single small greenhouse one rose tree may be grown, planted out or in a large pot. It is not advisable to include the variety Nephitos in a small collection; it is only suitable for a big structure where there is ample space. Molly Sharman Crawford and Mrs. Stevens, both white-flowered, are better. Richmond is good, Liberty, too; and Hadley, a deep crimson with delightful fragrance should be included. Madame A. Chatenay must have a place; in fact, if one variety only can be accommodated, this should be the one. Hugh Dickson, although a hybrid perpetual, does well under glass; Ophelia, Climbing Richmond, Mme. Butterfly, Mrs. J. Laing, Climbing Lady Hillingdon, Souvenir d'un Ami and Maréchal Niel are some of the best. The positions for the plants should be selected now; plenty of light is essential to success and strong, not weakly, specimens to begin with. A rich loam, inclined to be sticky rather than crumbly, is the best. A naturally light loam should be improved by the addition of stiff soil, and, in every case, add some good, well rotted manure—manure rotted under cover, not exposed to rains. Bury the manure quite 6ins. below the surface. As the rooting space is, naturally, limited under glass, it is essential that particular attention be paid to providing good beds and drainage. Do not be tempted to overcrowd the plants.

GEORGE GARNER.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

All communications should be addressed to the Service Department, THE GARDEN, 20, Tavistock Street, Covent Garden, London, W.C.2.

PLEASE REMEMBER TO MENTION "THE GARDEN" WHEN ANSWERING ADVERTISEMENTS.

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MORISIA HYPOGÆA

WHAT is, I am pretty confident, one of the most appreciated of alpine plants when in bloom is that charming plant, Morisia hypogæa. I am calling it an alpine, although, like a host of others, it does not come from high altitudes, but from the lower grounds of Sardinia. But it is eminently suited for the conditions of our rock gardens and, in common with other dwarf plants from low altitudes, may be classed as an "alpine." Its habit of growth, low and spreading (but not rapidly), makes it really an ideal plant for the rock garden, while the beauty of its prettily formed glossy leaves and the charms of its bright yellow flowers combine to give it a fascinating appearance in our eyes. Unfortunately, it has one trait which is a source of great disappointment to many. This is that it has occasionally a trick of dying off after having apparently become well established and when it gives one the prospect of retaining it for many years. I have experienced this personally and have learned from a good many others that this is their trouble also. The cause is mysterious, but, happily, the plant is propagated without much difficulty, and one can easily have a few plants in store in various stages of development, ready to replace any which may be lost. I cannot hazard an opinion regarding the cause of this unwelcome demise. But the morisia is very easily propagated by root cuttings, and also by division of large plants when carefully done. Seeds are also produced, but as these soon become buried in the soil they are often uncollected at the proper time. I have never found any young plants from seeds growing beside old ones, but in frames filled with sandy soil I have observed what appeared to be young plants from underground runners. As these were not my own plants I could not ascertain if they were from runners or seeds. But root cuttings are easily raised by cutting the roots into lengths of about an inch in autumn or very early spring and inserting them in pots with the thickest portion just at the surface of very sandy soil. In spring, growths will appear on the root cuttings and they can be potted off separately in the course of the summer. The cuttings should be put in a cool house or frame.

Respecting the cultivation of the plants in the rock garden, I have tried various composts and treatments, but what appears to suit M. hypogæa best is a very sandy soil with some leaf-mould and grit mixed with it. A well drained spot should be chosen on a sunny part of the rock garden. Although not essential, I have found this Morisia flourish best if it has frequent applications of pure water in dry weather in summer, applying this in the evening after the sun is off the plants. It appears strange to us that M. hypogæa was lost to cultivation in this country for a number of years after its first introduction, but this habit of dying off may account for this. Even with this failing, M. hypogæa is one of the most charming of the many beauties we can cultivate in our rock gardens. S. ARNOTT.

ANSWER TO CORRESPONDENT

Renovating a Mossy Tennis Lawn (D. R.).—This season has been very favourable for the growth of moss on weakly lawns. Those lawns which have been highly cultivated resist its intrusion. When the moss has gained a foothold, immediate steps should be taken to clear it away. Raking the turf is frequently tried, but it is ineffective. Its presence can generally be attributed to impoverishment or imperfect drainage, and frequently to both. It is necessary, therefore, to see that the drainage is right and the drainage pipes working well. When this is done, mow the lawn very close and apply one of the advertised moss eradicators according to directions. It generally takes two weeks for the preparation to do its work. At the end of that period most of the moss will be dead and can be easily raked from the lawn. At this stage apply chemical manure prepared to supply the deficiency which exists in the soil, so that it may be more favourable for grass growth and less suitable for growing moss. Immediately it has been applied, sow whatever grass seed may be necessary to thicken the turf. Lightly rake both of these together into the surface and afterwards mow the lawn without the collecting box being attached to the lawn mower. Continue to mow in this manner when necessary, for a time without the collecting box being attached to the machine. Avoid rolling until near the time for play, and then do it thoroughly until a fast, true playing surface is obtained.

CATALOGUES RECEIVED.

Messrs. Carter and Co., Raynes Park, London, S.W.20. Annual catalogue for 1925.

"Garden and Lawn."—Messrs. Carter and Co. have long been widely known throughout the horticultural world through their characteristic trade mark, of "Tested Seeds." Year by year, the firm has kept up with the gradually increasing knowledge in the raising of all garden produce. They have always endeavoured assiduously to maintain that high standard of excellence which characterised the energies of the firm in its embryo stages, and judging from their record of 1924, they have fully realised their aim. Their catalogue, as usual, is a comprehensive guide running to 116 pages and profusely illustrated by numerous half tone reproductions. There are a few coloured illustrations which, although not excellent, are of a high standard. A mine of useful information is contained in its pages, which will be found of extreme value and assistance to professional and amateur gardeners alike. Whether one seeks enlightenment on the raising of up-to-date vegetables in all their varieties, the treatment of lawns, one of the most important branches of the firm's duties, or the cultivation of flowers, the material is contained therein, set out simply, clearly and concisely. The catalogue indicates that one may look forward with eagerness and hope as to what the year 1925 has in store for the horticulturist.

Mrs. Grive, Whin's Cottage, Chalfont St. Peters, Bucks.—Pamphlets on Medicinal Herbs.

Messrs. Austin and McAslan, 89-95, Mitchell Street, Glasgow.—Alpines and Herbaceous Plants, also Coniferæ, Ornamental Trees and Shrubs, and Fruit Trees. Both handy guides for all gardeners in Scotland.

G. R. Downer, Drayton Manor Nurseries, Chichester.—Herbaceous and Alpine Plants—novelties for 1925.

Messrs. Clarke's, Royal Hampton Nurseries, Hampton, Middlesex.—Useful lists of roses, fruit trees, climbers and other plants, with a few hints given on cultivation.

Messrs. Harrison and Sons, St. James Street, Leicester.—Novelties and Specialities for 1925.

PUBLICATION RECEIVED.

"Descriptive Labels for Botanic Gardens," by Humphrey Gilbert Carter, Director of Cambridge Botanic Garden. (Published by Cambridge University Press, 1924, price 1s. 6d. net.)

Royal Horticultural Society. The R.H.S. Medals.—Some misunderstanding seems to exist among exhibitors at Vincent Square as to the various medals that are awarded by the Royal Horticultural Society. The misunderstanding may arise from the fact that about two years ago the Council carefully considered the whole question of the medals and decided to allot them each to a particular purpose and not to award the various degrees of all the different medals indiscriminately. Three years ago it was possible for the various committees to recommend the award of one or other of no fewer than ten different medals to any exhibit in the hall. At the top came the gold medal and then nine others in the following order: Silver-gilt Flora, silver-gilt Grenfell, silver-gilt Banksian, silver Flora, silver Grenfell, silver Banksian, bronze Flora, bronze Grenfell, bronze Banksian. This multiplicity of medals had two results; the first was that members of the public were entirely mystified and had little or no conception as to the relative value of any of them; and, secondly, the committees got into the way of ignoring the existence of bronze medals altogether. The Council decided that for floral exhibits in the hall at Vincent Square at the ordinary fortnightly shows, it was sufficient to have four degrees, and these were to be the gold medal and the Banksian, either silver-gilt, silver or bronze. The Flora medal was reserved for Chelsea and Holland Park, where exhibits are usually on a more important scale than at Vincent Square. The Grenfell medal was kept for exhibits of botanical drawings and paintings. In the same way the Hogg and Knightian medals, which had been awarded to fruit or vegetables, were separated, and for exhibits of fruits at Vincent Square there are now four degrees, the gold medal and the Hogg medal in silver-gilt, silver or bronze, and, for vegetables, the gold medal and the Knightian medal, in the same way. Obviously, in the period of transition from the old system to the new, some exhibitors may have felt that their award was inadequate or, rather, less than they expected; but, after all, the value of an award is not the intrinsic value of the medal, but the distinction in the eye of the public which comes by the awarding of the medal to its recipient. Any visitor to Vincent Square will now see that an exhibit may receive either a bronze, silver, silver-gilt or gold medal and will know at once the value that is attached to it by the committees and council. The Flora medal was reserved by the Council for award at Chelsea or Holland Park for the following reasons: Exhibits at Chelsea are much more numerous and vary much more in importance than those at Vincent Square, and, consequently, if the same medals were awarded to exhibits in order of merit, it would obviously often happen that an exhibitor would receive a medal at Chelsea for a more important group than one for which he would obtain the same medal at Vincent Square, and would, not unnaturally, feel himself aggrieved.—W. R. DYKES, *Secretary, Royal Horticultural Society.*

East Anglian Horticultural Club.—The annual meeting of this flourishing debating and educational club was held at the Boar's Head Hotel, Norwich, on December 10th. The annual report states that the membership now stands at 226. The finances are in a satisfactory condition, there being a credit balance of £95 3s. The election of officers resulted in Mr. F. J. Endersley, The Gardens, Keswick Hall, Norwich, becoming president; Mr. S. High, The Gardens, Framingham Manor, Norwich, acting vice-president; Mr. John Clayton (Messrs. Daniels Brothers, Limited, Norwich) treasurer; Messrs. Herbert Perry and A. A. Ramsbottom, auditors; and Mr. G. R. Todd, 12, Royal Arcade, Norwich, secretary. A lengthy list of special prizes for special exhibits during the forthcoming year was announced, and also a syllabus of lectures, essays, etc., for each monthly meeting during 1925.

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ON VIEWING NURSERIES

A CANADIAN correspondent has written to me about the importance of advertising plants in America. He had just returned from a tour of the States. What he says about advertising is common-sense, but that is not the point of this article. He mentions a firm in Southern Ohio which has a map of its district as a letterhead and also scatters cards broadcast with the same map and the heading, "For a nice drive follow the map." Apparently the nursery is some miles from a town. If you follow the map you find yourself ultimately driving through well kept grounds, at the far end of which is a large notice board, "This is the way out from the Hillcrest Nurseries; hope you enjoyed your drive." My correspondent remarks that in most cases people stop and ask for a catalogue and often leave an order on the spot.

Now this may be a form of advertisement which is unsuitable in this country. On the other hand, almost without exception, our nurserymen welcome visits to their grounds. Naturally, they realise that the chance of an order being given is greater when they can talk to a client at length and give him more of their time than is possible at a flower show.

Although specialists among the laity are in the habit of visiting nurseries, yet the general gardening public are slow to take advantage of this chance of seeing plants and examining them at their leisure. and this applies to every kind of nursery, whether it be that of a seedsman, or of a specialist in shrubs or alpines.

A flower show, particularly at the height of the season, is not an ideal place either for viewing or for buying plants. The ground is usually packed to the point of suffocation; the prospective buyer is so bewildered by all the plants and masses of colour around him that he does not know where to begin; while a nurseryman and his assistants do not know whether they are on their head or their heels through trying to answer a dozen questions at the same time.

In a nursery there is peace and quiet, and also room to turn round. You can see different varieties, usually in the mass, and can judge far better of their general appearance, and how they would look in your own garden. This is the case whether the plants be salpiglossis, delphiniums, roses, rhododendrons, or anything else.

This viewing at a nursery is particularly valuable in the case of trees and shrubs, for in most cases you will see fine specimens of various plants and can thus get an idea of their form, method of growth, and ultimate size. This is, naturally, almost an impossibility at a show, where lack of space and difficulties in transplanting limit the size of the exhibits. I should hazard a guess that the ordinary gardening public have little idea of the ultimate possibilities of at least 50 per cent. of the shrubs they order, which leads, of course, to innumerable cases of wrong selection and ill-placed plants.

This advice not only applies in the case of nurseries, but also to the famous botanic gardens throughout the country, Kew, Edinburgh, Cambridge, and so on. It is only too common an occurrence to see visitors walking through and admiring the plants without any thought of utilising the information to be gained from a thorough examination. There are sure to be many inhabitants which may not personally attract the visitor, or are ultra rare or are unsuitable for a particular garden, but there will be just as many which can be used. It is always a good plan to take a notebook and jot down anything that strikes the eye sufficiently, for it is almost impossible to remember everything that is admired in the course of a year.

We are always amazed at the number of requests that are constantly sent to this office for suggestions for planting schemes; for the specialist, on the other hand, the trouble is to find room for all the plants that he would like to possess. Answering these questions is always a dangerous proceeding, for we do not know the position of the garden, or soil or climate, except for vague descriptions given in the accompanying letter, and in addition we have no knowledge as to the personal predilections of the enquirer. By visiting a nursery enquirers could, at any rate, make their own choice and then ask if it was likely to prove suitable in such and such a position. Many plants have their reputations ruined by lack of knowledge on the part of a gardener who does not realise its requirements. Many a good plant is relegated to the dust heap, as being difficult or soft, when a little trouble and a personal inspection would prove that slight modification as regards situation and treatment would make it flourish like the bay tree. E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

THE CULT OF THE POLYANTHUS, by H. W. Canning-Wright.
LITTLE KNOWN VEGETABLES.
SOME ROSES FOR THE WILD GARDEN, by E. H. Wilson.
BOOKS ABOUT PLANTS.—I.

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DOUBTS AND DISCOVERIES

BY H. A. GREATOREX.

THE EARLY AUTUMN-FLOWERING CROCUSES.

(*Continued from page* 843.)

THE Spanish group of these crocuses is rather confusing to the amateur, and it is by no means easily disentangled when one's corms are mixed and untrue to name. The difficulties turn mainly upon the variability of asturicus in its colouring and in its leaf development at flowering time, and of Salzmanni erectophyllus in its leaf development.

Nudiflorus I have never seen. Every year it is listed, every year I buy it, and every year it has turned out to be asturicus, except once when ochroleucus took its place. Its glabrous throat should make its identification easy and certain.

Asturicus is the crocus that one gets from the nurserymen to-day when one orders either nudiflorus or asturicus. Its blossoms differ from those of nudiflorus in that they possess hairy throats. It varies very much in colour. The more richly coloured forms, of a deep purple lilac with a star of dark lines at the throat and with stigmata of bright reddish orange, can be mistaken for medius; but the latter can always be separated at a glance from asturicus as soon as its leaves develop, as their midribs are of a peculiar ivory whiteness, while the midribs of asturicus are of a more commonplace silvery hue. Medius, which, although it does not come from Spain, may be just mentioned here in passing, is one of the crocuses which may be ordered with a reasonable expectation of obtaining the real thing.

Some forms of asturicus have no visible leaves when they first open their flowers, though the leaves begin just to show within a few days of the opening of the first blossoms. Others do not flower till their leaves are 2ins. or so long, and there are all grades of intermediate leaf development. The proper spathes in the most leafless forms are of a pearly whiteness, and in the more leafy specimens veined with green. I find the same relation of leaf development and colour of the proper spathes in Salzmanni erectophyllus, a species with which the forms of asturicus with broader segments and paler colour might well be confused. I have never found, however, in the throat of an asturicus the slightest trace of the yellow which seems inseparable from the throats of Salzmanni erectophyllus. Moreover, while Salzmanni erectophyllus is of about the same tone of colour as asturicus in the bud and when it first opens, the former fades comparatively rapidly, till within two days or so it closely approaches the soft colouring of Sieberi; but asturicus tends to retain its colour to the end.

Two or three of my specimens have diphyllous proper spathes, a thing which I gather ought not to be; but I have satisfied myself by dissection that they really are diphyllous proper spathes, and the plants in every other respect appear to be typical asturicus.

Salzmanni erectophyllus is the crocus which, above all others, seems to gladden the heart of the nurseryman most. Not only do I get it when I order it by name, but it is the commonest of all the crocuses masquerading as other species. Salzmannii itself I have never seen in flower. It is regularly listed and I have bought it; but it refuses to flower with me as obstinately as does the saffron crocus. The erectophyllus form is a good, robust, free-flowering crocus, and flowers profusely with me grouped round a sunken rain-water tub, in ground which is regularly sodden by the overflowing of the tub throughout the winter, and is liable to be flooded by any heavy rain throughout the year. It appears to be remarkably uniform in colour, so much so as to give the impression of being all the produce by offsets of a single corm. This, of course, is not so, as is evidenced by the remarkable variation in the leaf development of different individuals. Although on an average the leaves at flowering time are considerably longer than those of asturicus, yet it has the same leafless and relatively leafless forms. My first consignment of asturicus was, in fact, not asturicus, but the present species; and when the two groups produced identical flowers, I was at first considerably puzzled to know which species I had. I now find Salzmanni erectophyllus easily separated from asturicus by the fact that the former has a long-pointed star of pale yellow at the throat, which asturicus never has. This star is formed by the presence at the base of each segment of a narrow band or broad line of very pale yellow, extending from the throat for a little distance up the centre of the segment. I find it in every form of Salzmanni erectophyllus I have, but never in asturicus; and I think it must be a constant feature of the former species.

Once the two species are recognised it is seen that they are very different in many small details the one from the other. Salzmanni erectophyllus being less rich in colour, more clumsy in shape and, on the whole, a less pleasing flower.

I have this year received a few corms which were stated to be those of Korolkowi; but they have flowered now, and prove to be Salzmanni erectophyllus in rather an extreme form. When its first flowers open the leaves are entirely hidden, and it is not till a week or so later that the points of the leaves just begin to show. It is worth keeping by itself, for, although the flowers appear to be absolutely identical with all the others in my garden, their appearance, rising nakedly from the pearly white proper spathes, is strikingly different from that of the more leafy forms.

I see that Messrs. Barr this year list Salzmanni erectophyllus as being synonymous with Clusii. This surely must be a mistake. At any rate, all the Salzmanni erectophyllus sent to me by Messrs. Barr have been Salzmanni erectophyllus *pûr sang*. I have seen Clusii listed once or twice, and have bought it; but it always turned out to be Salzmanni erectophyllus. This year Messrs. Van Tubergen offered it,

AN AUTUMN FLOWERING CROCUS, C. LONGIFLORUS.

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and I received from them two corms (all they could send). The corm tunics were a little unusual—tougher, rougher and coarser than is usual in Salzmanni erectophyllus, but with parallel fibres and no trace of the reticulations that Clusii should have. One of these has flowered. Its first flowers opened when the leaves were about half an inch long, and were quite indistinguishable from the rest of my Salzmanni erectophyllus. I fear there is no doubt it is not Clusii.

If we pass over longiflorus and hadriaticus, which we may treat as bridging the gap between the early and late autumn-flowering crocuses, only two additional early-flowering species are listed to-day, iridiflorus and cancellatus. As already mentioned, it was useless to order iridiflorus just at the end of the war, and it dropped out of the lists. It is listed again this year, and although the corms I have received are not of flowering size, there are indications pointing to its being really iridiflorus this time.

Four forms of cancellatus are listed, and there seems no disposition on the part of the nurserymen to send anything but cancellatus when it is ordered. They are all white forms with a greater or less amount of feathering except one, the form listed as var. lilacinus. This latter is not the form described by Mr. Bowles under the name var. cilicicus lilacinus. It should perhaps more properly be termed var. cilicicus. It has the long narrow segments of Mr. Bowles' form, but the anthers are yellow and not white. In other respects it varies a little in the depth of its soft colouring, and in the amount of its feathering; but it is a pretty and distinct form.

THE SOFT-COLOURED CROCUS SIEBERI.

A FINE BUT LITTLE KNOWN PILLAR ROSE

THE immunity from severe frosts has been favourable to the late blooming of this and other roses. To very many, however, Trier is quite unknown, but I can testify, after growing it for a number of years that it is one of the best pillar roses it is possible to have. When I mention that mine commenced to bloom early in June, that on November 15th there were some nice clusters, that it had never been without flowers since the first opened, its claim as a true perpetual is established, and its worth in a garden estimated. Sometimes, friends tell me of their success with rambler roses, pointing to their special favourites, but when I ask if they know Trier, their reply is invariably in the negative. Trier cannot be classed with rambler roses, whose blooming is of a fugitive character, as it is constantly throwing out flowering shoots, from fifteen to twenty flowers at a cluster. They are small, semi-double, creamy yellow, fading to a pure white, and they are possessed of fragrance, sweet as a wild rose. The foliage is of a deep green. Trier is not a rampant grower, and though it can be trained over pergola or arch, it is really more suitable for a pillar or wall.

It is at its zenith in early July, but there is little diminution of its flowering like many other climbers, as, if anyone can give it a south position, one can have blossoms continuously from June to November. It does not fill the garden with a conglomeration of shoots and suckers, like Dorothy Perkins, for instance, but is of steady growth, resembling somewhat old William Allen Richardson in this respect. I believe it was sent out by Messrs. Benjamin R. Cant and Sons, The Old Rose Gardens, Colchester, from whom I purchased it many years ago. I am of opinion, after a long acquaintance with it, that it is the most continuous blooming of all the polyantha roses, and certainly deserves a much greater recognition than is accorded it to-day.

It was recommended to me as an early and late bloomer, but it is more than this, as I do not remember a single season when it was absolutely free from flowers from June to November. Certainly. I have always been able to cut sprays in the latter month, and, on several occasions, have done so as late as Christmas. Unfortunately, not many dealers stock it, but I feel sure its merits only need a little judicious advertising to ensure for it a ready sale. I have no axe to grind in sounding the praise of Trier, I simply write of it as I have found it, as a dainty rose that gives of its treasures in clusters in charming array. It propagates freely from cuttings, and a friend of mine to whom I gave a shoot three years or so ago confirms all my good opinions of it, as the tree covers a garden shelter and in the middle of November when I saw it was full of flowers.

Does not this testimonial corroborate what has recently been advanced in THE GARDEN in reference to value of amplifying catalogue descriptions a little more? I venture to say it does. It is a fact that the great majority of polyantha roses bloom for a few weeks only—masses of flowers, swiftly followed by showers of petals thickly carpeting the ground, and the curious thing is that most people appear content with this evanescent display! I am not quarrelling with the beauty of sorts like American Pillar and Blush Rambler, and Wichuraiana roses as represented by Excelsa, Lady Gay, Hiawatha and Minnehaha, not at all; they serve a useful purpose, but what I have endeavoured to emphasise is, that a rose sent out years ago bearing the rightful name of Trier, assuredly, as it is always endeavouring to bloom, is to-day comparatively little known. It is not an exhibitor's rose, nor has it ever been, although I remember on one occasion seeing a basket among other table decorations at a show, which evoked much interest. Its chief value, however, seems to be as a pillar or wall rose, and is ideal to have round a window, where its beauty can be admired in the late autumn days, as well as in the first flush of summer when the buff orange buds expand in petals of creamy yellow with anthers of gold.

As I said in my note in THE GARDEN of November 15th last, under the heading of "Catalogue Descriptions," it should be remunerative (to the advertiser) to enlarge upon the merits of older plants, and that one of the reasons why some plants have little sale is because they are lost for want of proper advertising. This rose is a case in point, as many would be pleased to welcome it in their gardens, did they but know of its simple charm, and the long period over which it reveals its beauty.

CLAREMONT.

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TREES AND SHRUBS FOR AUTUMN FOLIAGE

IN THE GARDEN a short time ago there was an interesting and descriptive list of trees and shrubs which provided rich autumn foliage; to that list many others can be added. In the following notes I am supplying a few more, all of which have been much admired for the past two or three months.

The first touch of autumn colour last year was seen on the North American Ribes prostratum, which, as its name implies, is quite distinguishable on account of its low habit; it keeps near to the ground and the foliage attains the richness of R. americanum, which your correspondent quotes (I was also impressed by the same exhibit). R. Menzesii, which belongs to the gooseberry section and grows into a stout bush, also gave a luminous display of foliage. Resplendent as was the foliage of Euonymus planipes, latifolius and yedoensis, the first euonymus that gave colour was E. americanus and its var. angustifolius, both a purplish red colour. It is a somewhat loose grower and to keep it above ground it should be given support; the weak growths if tied loosely have a pendulous appearance. E. Maackii was reticulated with yellow and red. The euonymus that gave me most pleasure was E. Bungeanus, as the foliage turned from pale green to delicate cream, with a suffusion of pink on both foliage and fruits producing quite an unfamiliar autumn colour. It is a Chinese species 15ft. or more high. The leaves having long petioles and hanging loosely it is most ornamental, but fruits are produced sparingly. Not any foliage that I have seen surpasses the brilliancy of Rhus trichocarpa, a small tree with pinnate leaves which assume a dazzling radiance of cream, gold and scarlet. Those who are in possession of this plant must get into a state of ecstasy if it colours with them as I have seen it. Owing to the poisonous nature of some rhus there is a certain amount of risk if the foliage is handled; personally I have not suffered by so doing. Perhaps this rhus is not easily obtained, and I do not know if it can be propagated by cuttings, but plants can soon be raised as Japanese seed germinates freely, and the seedlings make 6ins. to 9ins. of growth in a season.

With all the commendation of Acer Ginnala and the palmatum varieties, A. grandidentatum qualified to usurp them this season. The latter is a west North American species with fairly stiff habit and foliage which turns to hues of yellow, red and greenish purple before any of the other acers. I must endorse the high favour bestowed on Fothergilla monticola, so handsome has the foliage been in a galaxy of yellow, scarlet to crimson, but growers must bear in mind that these colours do not always develop when growing in deep rich loose soil. F. Gardini, by the way, is a smaller shrub and has not the same glow of colour, but a sheen of purplish crimson comes through the green. Gleditschia aquatica var. elegantissima, which is quite another type of small-growing tree, is rounded in shape and interesting, as all the foliage seemed to turn colour from pale green to yellow simultaneously, but, alas, fell off just as quickly. I believe pinnate leaves with small leaflets are addicted to this fault.

Æsculus glabra, an American chestnut well known in its own country for autumn splendour, does not belie itself in this country, fairly large specimens giving a sumptuous display of glaring shades of red and yellow. I was about to write that it is the best of the chestnuts had I not some notes on Æ. glaucescens, which to me seems a glorified Æ. octandra, not only was the foliage exceedingly fine in a scheme of yellow and amber with enough red to give it a real artistic appearance, but it also unfolds, in the spring, foliage of a lovely colour. The summer dignified Himalayan Æ. indica shed its leaves without the least touch of colour. Certain oaks we are well acquainted with, but little has been mentioned of such as Quercus glandulosa, which early last October was pre-eminent, the foliage being lustrous red and noticeable from a distance. Nor less striking was Q. Leana, while young trees of Q. alba and marylandica, both from the east United States, tried to excel one another in their garb of super golden bronzed foliage. All the "Pignuts," and especially Carya sulcata and alba, at the end of October were majestic with their heavy load of golden foliage. Magnificent is the word for such trees in this grandeur. Some of the pinnate leaves were 2½ft. long, and opposite leaflets, when measured outstretched, were 23ins. from tip to tip. Oh, that there were more of those noble looking trees in cultivation! I feel certain Americans would be only too pleased to stimulate interest in this genus.

I do not know of any deciduous rhododendron to eclipse R. dilitatum, which has intensely red foliage, but recognition must be given to R. Tschonskii, a small virgate bush which becomes yellow and reddened. Among the azaleas no other species helps to enliven their choice colours so much as the common R. (Azalea) flava-pontica. Another twiggy ericaceous shrub is Elliottia paniculata, a Japanese shrub which possibly engages attention more when in flower, but it deserves inclusion in these notes as the foliage was quite gay in the late autumn. Vaccinium simulatum, a North American species which I am not certain about, but believe it to be near V. stamineum, is worth booming up, for the foliage becomes intensely red over every part of the leaf. Disanthus cercidifolia, a shrub quite hardy and greatly in request, should be in all collections where autumn foliage is a consideration. I first saw this shrub in flower early in 1918. It should be more often seen, considering propagation is easily effected. Cuttings taken in June from short shoots, 3ins. or so in length, inserted in very sandy mixture and kept in moderate heated cases, root and are ready for potting in six weeks. Plants in their permanent positions should never lack water, for too dry a position is much against their well-being. C. F. C.

TREILLAGE

A USEFUL ADJUNCT TO THE GARDEN WHEN IMMEDIATE EFFECT IS REQUIRED.

TREILLAGE is one of the most useful materials at the disposal of the garden architect, and it is gratifying to find that it is growing steadily in popular favour, as its immense possibilities become more widely known and appreciated.

The word "treillage" has been defined, I think, to mean trellis which has some pretensions to architectural treatment, but it will be sufficient if we consider it to imply some better conceived structure than the cheap lattice of the ironmonger: if, in short, we regard it as something which has been specially designed to meet some special need.

In the average garden there are countless ways in which trellis can be employed, and if it be used with care and discrimination, many beautiful and varied effects can be contrived.

One of the most charming ways of utilising treillage is as an alternative to the hedge, where rose or other special gardens need to be enclosed. Perhaps its greatest advantage is that, once erected, an almost immediate effect is obtained; and when, after a year or two, climbing plants have established themselves, the whole bears a finished appearance which the lapse of many years would hardly give to a yew hedge. Financial considerations are important ones nowadays, and it will be found that trellis compares favourably with hedges in the matter of cost, especially when the expense of trenching and manuring the soil is added to the price of the plants of yew, cupressus or thuya. The trellis, of course, cannot give you that sense of dignity and repose which seems inseparable from a fine hedge; but it has a grace and an airy charm which are peculiarly its own.

In its simplest form the trellis enclosure would be from 6ft. to 8ft. high, supported on stout posts, and made with a square mesh of, perhaps, 6ins. to 9ins. across. This could be put up easily enough by an intelligent and handy labourer; but for the more ambitious designs in which the top line, instead of running straight, is scalloped between the posts, or in which combinations of square and diamond meshes occur, it would be

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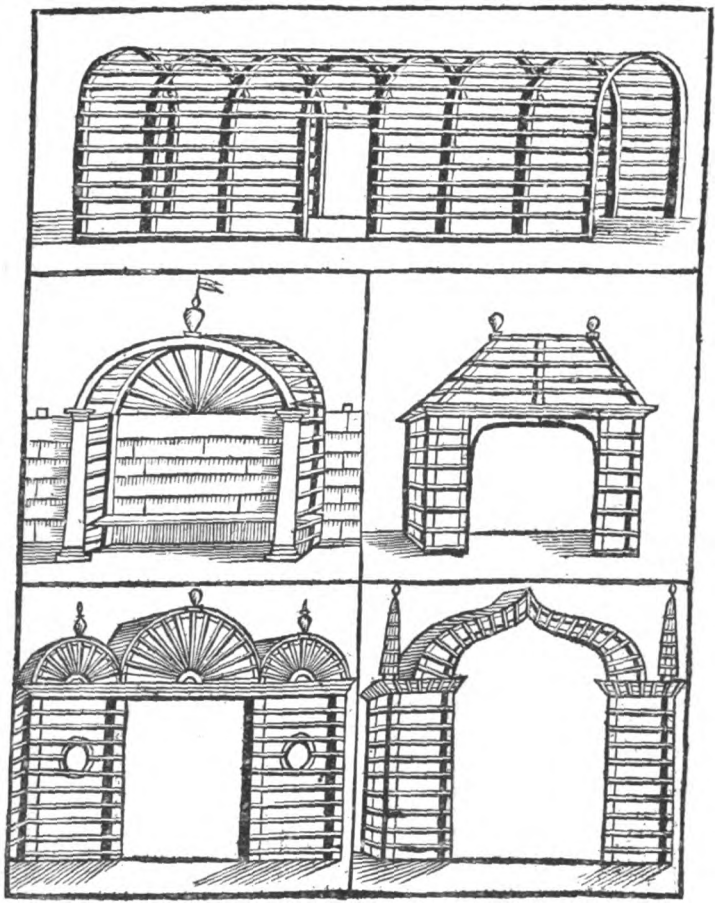
prudent to enlist the services of a good horticultural firm. One or two of these firms make a speciality of treillage, and may be depended upon to carry out carefully either their own or their customers' designs.

Another beautiful use to which trellis can be put is as a facing to walls or fences. Very few fences and not all walls are really pleasing in themselves, and there must be many gardens in which an arid stretch of wood or brick could be covered with a simple form of trellis and planted with one or two good climbing plants. Estheticism apart, there are practical advantages in such a scheme, for in hot weather many plants appreciate the inch or two of air which lies between the woodwork and the baking wall. In addition, most climbing plants can support themselves on treillage, and the exceptions can be fastened more speedily to the laths than to a wall or fence.

Little arbours made of trellis look extremely well, and while their light construction makes them a rather precarious refuge from heavy showers, they afford wonderfully cool and airy retreats from the summer sun.



EXAMPLES OF SEVENTEENTH CENTURY DUTCH TREILLAGE

In large gardens the gazebo or garden house takes the place of the arbour, and although these are, in many cases, massively built of brick or stone, roofed with tiles and fitted with elaborate doors and windows, it is questionable whether a better effect could not sometimes be obtained by supporting the roof on brick piers and filling in the intervening spaces with trellis.

The wood most generally used in the construction of treillage is oak. This is a wood which always looks well, and it can be preserved for many years by treating it with Solignum or some other good stain, which in time will weather to a silvery hue. Deal might be used with success in gazebos or other structures where it would have a certain amount of shelter from the weather, and would look well if painted white or a glaucous green.

Some mention should, I suppose, be made of rustic trellis. Usually, this is objectionable to a degree, particularly if it happens to be of the "ready-made" type. Most of it is made of horribly contorted branches, varnished to a quite unnecessary brilliance, and ought not to be tolerated anywhere. I wonder how many miles of this stuff are sold every year? A great many, I should imagine, if the advertisement pages of the gardening Press are any criterion.

The manufacturers, naturally, are far less blameworthy than those people whose insistent demand dictates a constant supply of these cheap and nasty creations. The firms would be only too glad to sell something better if their patrons would let them.

In small gardens, however, where an architectural note need not be struck, a trellis of light poles is quite permissible. A structure such as this could be built of any suitable wood, but unpeeled larch looks as well as anything. A preservative stain should be applied to the ends of the poles which are to be inserted in the soil, and this precaution will add years to the life of the trellis.

D. G. S. HOOK.

SHORTIAS, CHARMING WOODLAND PLANTS

THESE very choice little evergreen plants call for rather more than ordinary care if one would be sure of success; but, providing a suitable position is chosen, and their requirements met regarding soil, there is no reason why such plants should be seen so rarely. Apart from their exquisite flesh-coloured, fairy-like flowers in spring, the foliage is more or less beautiful at all times, though it is in autumn and winter that the rich bronze or reddish leaves are of an exceptionally fine colour. The open woodland provides the ideal home for the shortias, but it is not everyone who is fortunate enough to possess such a restful adjunct to his garden, therefore the rock garden must be considered as taking second place; in any case, the treatment is similar. Choose a moist yet well drained position in partial shade at the foot of the rocks, or if in the woodland, on the fringe of conifers but clear of the drip from deciduous trees and near to a frequented walk, as it is as well to have such rarities under constant observation. Should the existing soil be heavy or poor in humus it must be entirely excavated to a depth of 2ft., or more if drainage be considered necessary, but avoid digging a well for surface moisture to drain into. This can be accomplished by selecting a somewhat raised mound or bank, digging out and breaking up the soil to the lower surrounding levels. Natural drainage will then be assured. Place a layer of broken peat turves in the bottom, finally filling up to about 6ins. above the original ground level with a good free mixture of peat, loam and sand. Half-decayed leaf-mould can be used instead of peat with almost if not quite equal results. Tread the compost in firmly while it is new and dry. All will then be ready for planting, which is best done during a mild spell in spring. Should frost or cold wind set in immediately after planting it is advisable to protect with evergreen branches or other material. In the actual planting see that the plants are put down to their original level and fine soil worked in round the root stalks, and make firm by pressing inwards to the root stem, not downwards, or the fine roots may be stripped off. Established plants from pots are naturally easier to deal with, but even in this case the ball of soil or roots must not be interfered with, as they resent disturbance. The well known North American species, S. galacifolia, is the easiest to grow, also to procure, as it is fairly plentiful in this country, and when once established under ideal conditions will quickly form spreading clumps. It is sometimes possible to obtain good pot-grown plants of the rare Japanese S. uniflora, but this plant is much scarcer than the former, which it resembles, except that the leaves are smaller. The most beautiful of all, however, is the form called S. uniflora grandiflora; this is a most lovely thing with large, wide-open, pale pink blossoms on 3in. or 4in. stems, while the foliage, too, is quite distinct, being almost round and smaller than in the type—or is this latter the type plant? as R. Farrer in his "English Rock Garden" seems to have thought.

Propagation is generally by division, but unless one is really hardened to these more difficult plants it is better left alone, for they are all too scarce. I wonder if any reader has raised stocks from seed? I have harvested and sown seed of S. uniflora grandiflora, but so far without results, none having germinated.

J. T. H.

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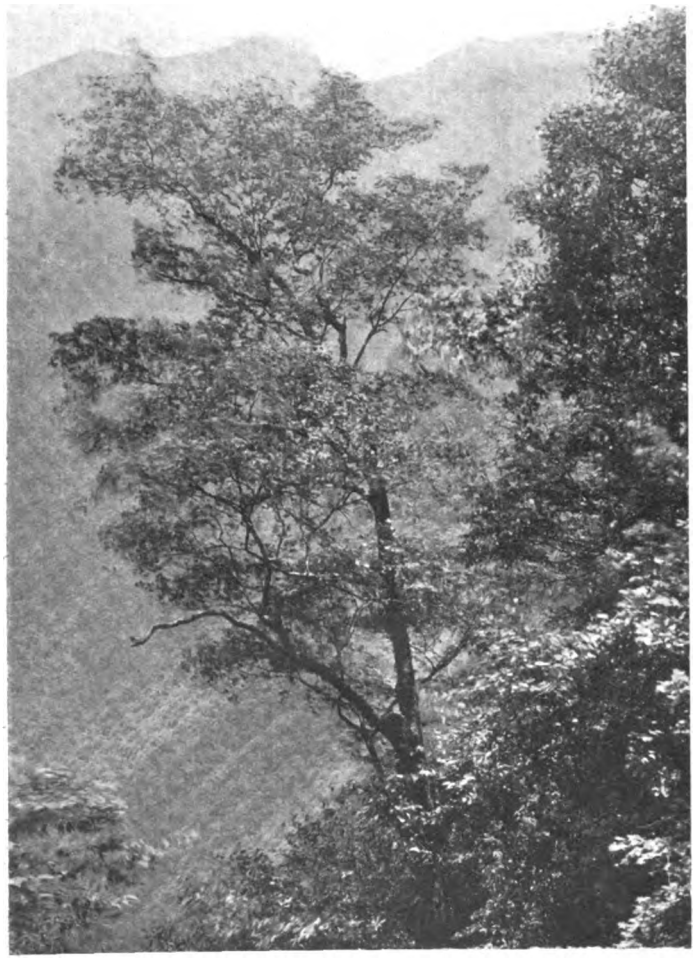
ACER GRISEUM

BY E. H. WILSON.

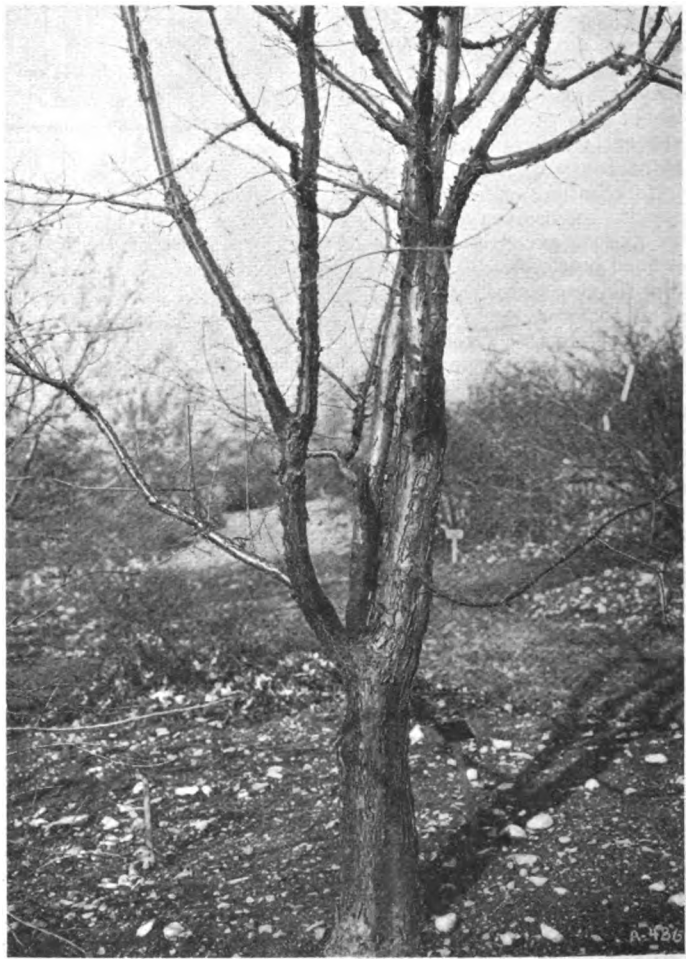
IN his article on "Supply and Demand" in THE GARDEN for November 15th, 1924, the Editor makes use of a rare Chinese maple (Acer griseum) to illustrate his point of view. As the person responsible for the presence of this tree in Western gardens I read the argument with zest. Quite as an after thought it occurred to me that the story of this maple might be worth setting down.

It was in May, 1901, that I first saw A. griseum and straightway became captive to its charms. Looking over my notes I find the terse statement—"Hupeh's best Maple." Now, twenty-three years afterwards and with fuller knowledge of the flora of Eastern Asia, I do not find my judgment at fault, though it might be enlarged to read "China's best Maple." forests of north-western Hupeh and contiguous Szechuan, but recently it has been found in Northern Honan. It was discovered about 1892 by Père Farges and was first referred to A. nikoense as a variety, later it was raised to specific rank.

Unlike many Chinese maples A. griseum has taken kindly to the climates of Europe and eastern North America. In the Arnold Arboretum we have three plants. One was nearly murdered during the winter by field mice which gnawed through the bark for four-fifths the circumference of the trunk. The other two are lusty young trees which have flowered and fruited for several years, but, alas! have borne no fertile seeds. They have never suffered winter injury and have smilingly endured



ACER GRISEUM IN THE FORESTS OF CENTRAL CHINA.



THE MAHOGANY RED BARK OF A. GRISEUM.

With its shining mahogany-red bark, thin, peeling and curling to display smooth, polished, orange-brown patches on trunk and branches, this species is unique among the fifty odd species known from the Flowery Kingdom. Throughout the winter it is one of the most attractive trees I know and in the spring, as the sap rises, its stems fairly glow. The leaves are three-foliolate, relatively small, irregularly toothed, clothed with long pale grey hairs on the undersurface and as they unfold are ruddy bronze in colour. Soon they become nearly smooth, green above and light grey below and in the autumn are gaily tinted orange to scarlet. The flowers are yellow, borne in small clusters and are followed by the usual key-like fruits. Everything about this tree is pleasing, but over and above all is the beauty of its bark.

This maple is usually a tree from 30ft. to 45ft. tall with a trunk from 3ft. to 4ft. in girth; the finest specimen I have seen was 60ft. tall and 8ft. in girth of trunk. Its home is moist rich woodlands between elevations of from 4,000ft. to 5,500ft. A rare tree, this maple is known to me only from the as much as 50° F. of frost. So English gardeners need not worry themselves about its hardiness. The drawback is the difficulty of propagating it. I know of a plant raised by layering, two by grafting, but no more. Even in China the tree does not bear fertile seeds every year. In 1901 I secured a good harvest of seeds, from which Messrs. Veitch raised one hundred plants. In 1907 I collected other seeds, but in the Arnold Arboretum we succeeded in raising one plant only. Fortunately a few seedlings were culled from their mountain home and safely transported to America.

There is an old saying that "Good wine needs no bush," and this is true of plants, but their merits may long remain unknown to many garden lovers unless some friendly scribe sets forth their charms. Collectors of new things must be wary how they descant upon their finds, or they may injure where they would bless, for the world is sceptical. And so a decade or two may easily slip by before the qualities of a plant become properly known. Such has been the experience of this handsome maple.

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PLANTS I HAVE KILLED

BY DR. R. LLOYD PRAEGER.

THE TITLE EXPLAINS THIS ARTICLE. DR. PRAEGER IS FRANK AS TO THE LIMITATIONS OF SOIL AND CLIMATE IN THE SUCCESSFUL CULTIVATION OF ROCK PLANTS. THE TROUBLE WITH THEM IS NOT ALWAYS ONE OF HARDINESS OR WRONG TREATMENT. OFTEN THEY SIMPLY REFUSE TO GROW HOWEVER WELL YOU MAY TREAT THEM.

WAS it Frederick the Great who used to greet a new physician with the enquiry, "Well, how many graveyards have *you* filled?" Were the same gibe addressed to me, I could, like many another rock gardener, only bow my head. For, indeed, unless one is satisfied to lie ignobly at anchor in the safe haven of London Pride and Periwinkles, casualties are frequent on board, and one's course is punctuated with burial services. A dim perspective of beloved ghosts stretches behind one, ever lengthening as the years roll on. I am not referring now to such notorious fade-aways as Hudsonia ericoides or Eritrichium nanum or Saxifraga florulenta or Schizocodon soldanelloides. There is no credit in killing them—any fool can do that. If one has any enterprise at all, the list of things that one has loved and lost is a long one: it gives rise to many conflicting thoughts; and a little meditation upon it is a salutary exercise, and conducive to humbleness of mind.

As in most problems of gardening, it is difficult to generalise on this matter, because one's failures are in considerable measure dependent on the conditions of soil and climate under which one works. So as regards personal reminiscences in the remarks which follow, it is necessary to premise that my domain consists of a small suburban Dublin garden, with a mild climate (though not very mild for Ireland) and a light loamy limy soil. The limitations of such a garden are obvious. Save in pockets of peat, no ericaceæ will survive except for the few precious things, like Rhododendron hirsutum and Erica carnea, which do not care where they grow. No damp-loving plants either, like Ourisia coccinea and many species of mimulus. But indeed, as regards plants of wet places, I have been more surprised at the things that contrived to live than at those which gave up the attempt. The marsh fern, Lastrea Thelypteris, appeared in some mysterious way in a clump of Anthyllis montana—the one a plant of soaking swamps, often under water for half the year, the other from the hot rocks of southern Europe; and they still live amicably together. The graceful Carex Pseudo-cyperus, another "wet" plant, wanders about the garden (by seed), looking for a spot moist enough to settle down in, and never finding one.

Every gardener has, of course, his list of plants which he longs to grow but which are just too tender for the particular climate with which he is afflicted. We in Ireland are, in general,

GALANTHUS ELWESII WILL ONLY GROW WHERE IT CHOOSES.

well off in this respect as compared with our English and Scottish neighbours; but, just as no one has quite as much money as he considers he ought to have, so everyone's climate is just a degree or two too cold. Among the plants which will grow here for a few years, only to be destroyed just when they are beginning to look really happy, are Dendromecon rigidum, Sollya heterophylla with its pretty blue flowers, Billardiera longiflora with its blue berries, Cineraria lobata—a gay little thing never out of flower—Senecio leucostachys, and many others. Their decease is always the more regretted since all are quite hardy only a few miles away, down by the sea. But, after all, there is no reason to repine: it is our first duty to learn our climatic limitations and to accept them; "there's lots of good fish in the sea," and we need not don mourning.

More annoying in reality are those plants which will grow with you if they choose, and won't if they don't. That is all there is to it, as the Americans say. There is no use in coaxing them or coddling them, or providing them with complicated composts or ideal nooks. If they won't, they won't, even though they may flourish like weeds in a neighbour's garden. The plants which come under this woeful category no doubt vary in different parts of the country. Visions of Iris reticulata arise in my mind in this connection, to quote only one example; and I think many people would add Gentiana acaulis (so-called).

Then there are the curious instances of plants which will grow in one's garden where *they* choose, but not where *you* choose. With me, Iris hispanica rapidly died out everywhere it was planted, but sowed itself between two blocks of stone, and, tightly wedged in, it increases year by year. Galanthus Elwesii behaved similarly, choosing its own apparently very unsuitable home.

Much more distressing than these are the plants which are equally unwilling to live or to die. An excellent—or rather, horrible—example of this with me is the citrange, a hybrid citrus sent out for experimental purposes some years ago by the United States Department of Agriculture. I never look at it without thinking of Calverley's parakeet:

He'd look inimitable stuff'd
And knows it—but he will not die!

GENTIANA ACAULIS IS OFTEN AS STUBBORN AS A MULE.

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Every spring it pretends to start growth, and then changes its mind. Like Wordsworth's thorn,

> No leaves it has, no prickly points ;
> It is a mass of knotted joints,
> A wretched thing forlorn,

and every season it looks more disreputable and more dissipated.

In contrast to these, there is a group of plants which flourish exceedingly for a while, and spread ravishingly about the garden ; after some years they diminish and finally disappear, and no matter how often re-introduced, refuse to repeat their first delightful performance. I fancy that the species which do this vary to some extent in different districts ; with me Linaria alpina and Papaver alpinum were noteworthy instances. The meaning of this phenomenon has always puzzled me. One theory is that the plant exhausts a certain quality of the soil ; that seems unlikely. Is there a diminution in vigour in the successive generations, just as in the case of some newly introduced species there appears to be an increase, or at least a change rendering them more suited to the new conditions ?

Again, there is the question of slugs, a race which has more murders to its discredit than the worst of the Cæsars or Borgias. But here again there is discrimination. Not only are some slugs more destructive than others (one species, indeed, preys upon its fellows, and ought to be encouraged, like those of the genus testacella which live on earthworms), but they attack different plants in different gardens. There are some plants, indeed, which are gobbled everywhere unless protected, like Phyteuma comosum ; but many others are persistently eaten in some places, and never even nibbled in others—another phenomenon worthy of investigation. Of one thing, however, we may be sure—slugs will always tackle a new plant, and the rarer it is the greater their anxiety to sample it. Mortality may be reduced considerably by putting a zinc ring round every new small prize : it will keep off not only slugs, but many things besides.

I find I have been prowling round the fringes of my subject, between the living and the dead, without the courage to enter the main cemetery at all. But it is before my eyes all the time, populous with lost treasures—primulas and gentians by the dozen, dainty alpine androsaces and campanulas and phyteumas, stiff little Lewisias and silvery tiny artemisias ; æthionemas, violas, pentstemons, and what not. Each for a while has gladdened my heart,

> . . . and anon
> Like snow upon the desert's dusty face
> Lighting a little hour or two—is gone.

Things from Chili and from China, whose want of hardiness was conveniently excused in nurserymen's lists ; North American plants, whose need of peat was modestly concealed ; high alpine gems that even under the most skilled treatment are short-lived in our uncongenial lowland gardens, though venerable with age among the snowy crags ; each in his narrow cell for ever laid, is now but a memory. But experience brings wisdom to all who know how to learn, and knowledge foreshadows success ; many deaths have been redeemed by subsequent success. There is no use trying to grow a difficult plant till you have found out all you can about it—what country it comes from, what climate, what elevation—if possible, what soil. Then you will have something to go upon—some idea where and how to plant it. But for all rock plants (and it is they in particular of which I am thinking), deep drainage above all things, and a light soil. And there are two fortuitous and unsightly aids which will save many a life : one is the zinc ring already mentioned ; the other is for the woolly-leaved treasures that damp off in our abominable winters—a triangular piece of glass pushed into the earth close to the plant at an angle of 45°, so as to form a kind of roof. This has a surprising effect on such things as Asperula Athoa and the tiny androsaces.

But many of the loveliest of the mountain nymphs will not come to us : it is we who must go to them, to the infinite benefit of both mind and body. There, on the wide-flung crags, to see them is an education in itself, and brings an uplifting of the heart such as few things can give ; but in our gardens they languish and pine, and in spite of all our loving care, one day we find them gone. *Requiescant in pace !*

A HOUSE FOR SEEDLINGS

A STRUCTURE TO MEET THE REQUIREMENTS OF THE HYBRIDIST AND RAISER OF CHOICE PLANTS FROM SEED.

PLANT breeding is a fascinating pursuit, and whereas in time past it was, generally speaking, looked upon as the prerogative of the professional expert and the *élite* among trade specialists, this particular phase of horticulture has to-day irresistible attraction for a large number of keen amateurs whose chief ambition is to raise and introduce to cultivation " something new " that shall be welcomed as a valuable addition to whatever may be its particular class of plants.

Seeds are divisible into various classes or groups, but while there are those which may best be sown in the open ground and others for which a hand-light or garden frame will afford ample protection, there are many for which a greenhouse is necessary. Under this category must be included not only the seeds of what are usually termed " greenhouse " plants, but a wide range of small seeds of plants which are hardy when fully developed, but fragile in the juvenile stage, seeds which are very slow of germination, seeds which are the result of crosses between distinct species and the constitution of which cannot be foretold, and seeds which have been collected in foreign habitats or have been imported from distant sources, and may quite possibly have lost some degree of vitality during the period intervening between harvesting and sowing.

The owner of an ordinary greenhouse may find its capabilities quite equal to his requirements so long as he simply sows the ordinary range of garden seeds, and it would be folly to suggest that every garden should possess a special seedling house. The plant-breeder, however, simply cannot afford to risk the loss of seeds or seedlings for the lack of a suitable house in which to bring the results of perhaps years of patient labour and endeavour to a successful issue. That is the justification I have to offer for touching upon an unusual theme.

Let me disclaim any capability as a carpenter or builder, lest my readers expect me to disclose subtle secrets of the craft that shall enable them to build a perfect house at a minimum expenditure of cash and labour. Let me rather tell what I as a grower and propagator would wish my seedling-house to be, and indicate the faults and blemishes I would wish avoided in its design and construction, and leave it to cleverer men of tools than I to put these recommendations into material shape.

First, let the choice of situation be considered, for a perfect seedling-house in the wrong position will immediately lose its perfection for practical purposes. Seek not a position exposed to full sunshine, for that ranks among the worst aspects for a seedling-house. Avoid overhanging shade, or trouble lies ahead through precious seedlings being drawn up weak and spindly. A northern outlook is admirable *if* the position is well sheltered from biting winds but is open to unrestricted daylight. Where a northern exposure is too bleak, choose west in preference to either south or east. The former is too hot, and the latter has the disadvantage of catching early morning sun, sometimes a very material disadvantage where tiny seedlings are concerned. The house may be a lean-to, for if a good wall is available it will be more economical.

In regard to the ground it stands upon, if the soil is heavy and wet, excavate a reasonable depth and make a floor of porous rubble, clinkers or ashes. A cemented or tiled floor is an advantage, helping to minimise the risk of development of moulds and fungi, such floors being easily scrubbed and cleaned. While attention is directed to the floor, let me urge that it should slope slightly toward a shallow gutter leading to a good drain. Every possible means should be devised to ensure freedom from stagnant moisture, for puddles

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on the path or under stages are fruitful sources of trouble.

For the roof use broad glass, reducing the number of rafters, for the woodwork casts shadows and tends to cause drip, a bugbear to the seedling raiser. I know, alas! of no drip-immune rafter; but to minimise the trouble the roof of a seedling-house should have a fairly steep pitch. That is one point that has before this been argued on the ground that because seedlings require to be kept near the glass the roof must be low and pitched at a broad angle. My retort is that other and better means are possible of keeping seedlings near the glass.

There is no necessity for upright front lights to a seedling-house. The roof should rest on a short front wall. The ends of the house should be glazed, if possible, but if the position of the house is in a corner one end may of necessity be opaque. Corner positions, however, are only good when they afford shelter without curtailing daylight.

Roof ventilators should be small and numerous, arranged not in one continuous row along the top of the roof, but alternately at the top and midway down the roof. There is a reason for this which may here be explained. In view of the importance of keeping the staging of a seedling-house as near the glass as possible, the pathway and door will be situated midway between the front and back walls. The front stage will be flat, and upon this newly sown seeds will stand. The back stage will start at a higher level and be arranged in tiers, the top tier being virtually a shelf along the back wall. If the only ventilators are at the top of the roof it may frequently happen that a cold, cutting draught drives right on to the seedlings on the top shelf, whereas that can be avoided by opening the mid-roof ventilators which will not have a shelf so immediately under them.

Ventilators may also be put in the upright ends of the house and a row of box ventilators along the front wall. The more the means of ventilation can be distributed the easier it will be to admit air without cutting draughts, simply by opening on the leeward side.

The front stage demands special attention, for here actual germination is to take place. The best material for this stage will be square perforated tiles such as those used for malt-kilns. They should be laid on a framework of iron strap bars 1in. by ¼in., and at the front of the stage an edging of about 4ins. depth should run the whole length, the object being to hold a bed of coconut fibre in which to plunge the seed-pans.

The hot-water pipes for this house should all be under the front stage, the flow pipe along the wall side, the return near the path. This gives the advantage of slight bottom heat for such seeds as require it to help germination, and at the same time avoids dry heat that might rise to pans of seedlings placed on the back stage if the pipes passed under it. At one end of the front stage a portion should be partitioned off, with a glazed frame cover on hinges. Under this frame many seeds will germinate more satisfactorily than on the open stage, and with a variety of accommodation thus provided the seedling-house will be capable of ensuring the best results from practically all classes of seeds.

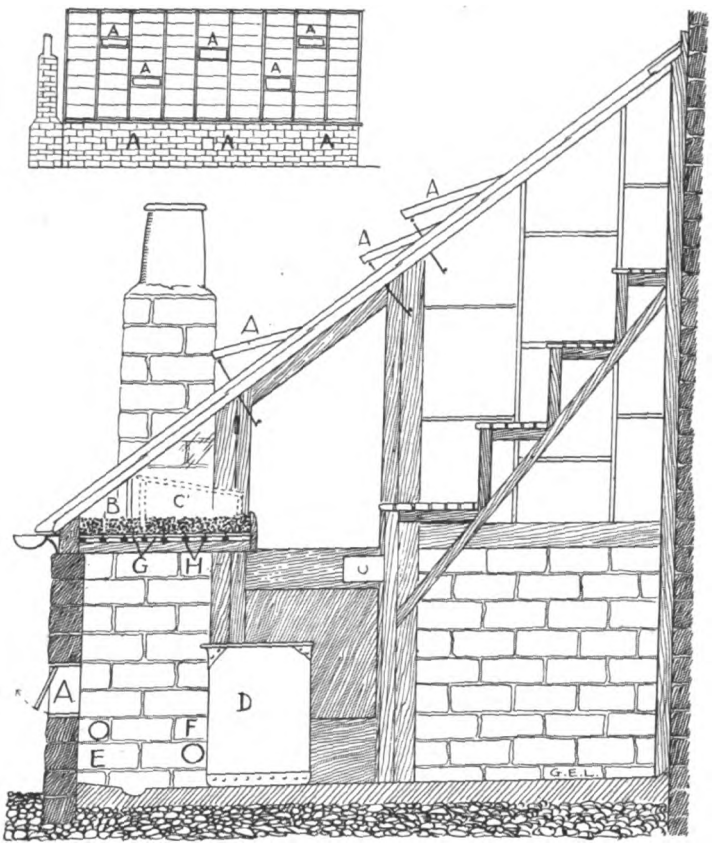
Underneath the stage racks may be placed, upon which trays of stratified seeds of trees and shrubs may be placed. It is of material benefit to stratify hard seeds, berries of shrubs, etc., in trays of coconut fibre before they are actually sown in soil.

Sometimes raisers of ferns, orchids and tender succulents find it advantageous to make use of a porous bed of burnt earth, stone chippings or washed sand, somewhat after the style of the moraine of the rock garden. Such a bed can easily be made on the perforated malt-kiln tiles, the under-current of moisture being secured by sinking a few small empty plant pots in the bed and filling these with water as required.

One further detail requires to be mentioned—the water tank should be so fixed that the hot-water pipes come in contact with it for the purpose of warming the water, and it should also be so situated that seed pans may conveniently be dipped, that being a method of watering seedlings which is well known to be infinitely better than overhead watering.

The differences between the house I have described and an ordinary house may appear trivial and insignificant, but it must be remembered that most seeds are small, many are minute, and seedlings are the babies of the plant world, consequently small matters are of great moment. If a seedling-house is to be built it is well worth while to attach to it a seed store. Quite a small extension will accommodate many seeds, but the store should not have a glass roof, a window to admit light being all the glass desirable. Metal despatch-cases are the best cupboards for seeds, and glass jars or bottles for the seeds are better than paper packets or cardboard boxes. Bins for soil, sand, charcoal, etc., may be accommodated in the store, or potting-shed.

A. J. MACSELF.



END VIEW OF LEAN-TO SEEDLING HOUSE.
a Ventilators. *b* Fibre-bed for plunging seed pans. *c* Small frame for special seeds. *d* Water tank, at opposite end to door, projecting for convenience of dipping seed pans. *e* Flow pipe. *f* Return pipe. *g* Perforated kiln tile staging. *h* Iron strap bars to carry kiln tiles.

(ABOVE) FRONTAL VIEW OF HOUSE.
a Ventilators at varying levels. (*See text*).

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

All communications should be addressed to the Service Department, THE GARDEN, 20, Tavistock Street, Covent Garden, London, W.C.2.

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NOTES FROM CONTRIBUTORS

SCABIOSA CAUCASICA.

DURING the last few years a wonderful advance has been made with this beautiful scabious, and now there is a number of distinct varieties which make it necessary in numerous gardens to devote a bed or border to their cultivation. When we consider their long flowering season, their lasting qualities and decorative value as cut flowers, it is surprising that they are not more widely grown. The plants are true perennials and quite hardy, but slugs are very fond of all varieties of S. caucasica. These marauders will soon destroy the strongest plants, and herein lies the cause of most failures. To be successful slugs must be kept down, and the only effectual remedy I have found is lime. The usual mere dusting is useless, a handful of dry dust lime must be placed on each plant, and Mr. House of Bristol tells me he has often done the same thing with excellent results. Lime is given during the winter months, and it is at this season that slugs are most destructive.

S. caucasica may be planted from March to September, choosing a well drained position away from the shade of trees and other plants. No doubt it is best to grow them in a separate bed or border, but if the herbaceous border is chosen, then an open clear spot must be given. Every third year the plants are divided, and such work should be done in March or April. When well grown, and if slugs are kept in check, there is no difficulty in this direction. No staking is needed, the growth being erect, and the flower-stems are strong, a fact which makes them so valuable both for the garden show purposes and dwelling-house decoration. In addition to the type of S. caucasica, which is a beautiful shade of pale blue, there is a white form known as alba and another as White Queen. Two very fine dark varieties are named Isaac House and Diamond, but now there are others in various shades of mauve and blue. An interesting task is raising them from seeds, and these should be sown in March or April in pots or pans of light soil. They will germinate in a frame or greenhouse, and directly the seedlings are large enough transfer them to their flowering positions. The majority will be inferior to already existing varieties, but there is the possibility of flowering something really good, while many will be of garden value.—T. W. B.

"WHAT S IN A NAME?"

I HAVE been occupied recently in my annual task of making out the order for the kitchen garden seeds. As I read the long roll of magnificent names which adorned the seedsmen's catalogues, my thoughts wandered in contemplation of the influence exercised by names on human minds and actions.

Do not travellers tell us of Eastern races who, through fear of the malignity of evil spirits, call their infants by repulsive names, in the belief that the menacing powers will not trouble to pursue with their vindictive hatred babies bearing names such as Son-of-a-Rat, Bit-of-Dirt, Moth-eaten-Rubbish, and others equally unpleasant? This custom is, of course, merely an example of belief in the repellent force of names, and need not occupy our consideration now.

As Westerners, we are more influenced by their attractive and awe-compelling force, as shown in the choice of the remarkable names bestowed on garden flowers, bacilli, patent foods and remedies, racehorses, dress materials, diseases, semi-detached villas and many other things. None of these, however, rivals the super-nomenclature which make seed catalogues so bewilderingly dazzling. During the course of fifty years, the nursery gardener has succeeded in raising his placid vegetables to such a pinnacle of glory as cannot fail to excite the envy of every other owner of a proud name.

Who can attempt to vie successfully with "Peerless-Perfection," or "The Wonder-of-England," or "Ne-Plus-Ultra," or "Marvel-of-the-Season," or "Best-of-All," or "Nonpareil," and so on? And these names are not only superlative in themselves, but, like gilded gold and painted lilies, they are emblazoned with descriptions matching them in splendour: "Royally magnificent," "Very prolific and reliable," "Superb and very hardy," and "combines every desirable qualification, having carried off in open competition many costly awards," etc.

May we hope that the time may not be far distant when the knowledge that humble vegetables have reached these heights of perfection shall spur on other ranks in the scale of creation to attempt the attainment of even greater success? We may expect that the impulse will extend to human beings, possibly even to politicians. When this happens, we shall really see the beginning of the New Era, which, despite all the prophecies of statesmen and dreamers, has not yet dawned on us.

As nothing on earth is absolutely flawless, we cannot expect that time of bliss to escape all imperfection; and recent experiences suggest to my mind that one of them may be felt in a probable increase of complexity in voting at a parliamentary election. It is very difficult under our present circumstances to be always certain of selecting the right candidate; but in those days, when men and women will win a super-nomenclature for themselves, who will be able to decide between the rival claims of candidates, whose attributes are displayed after the manner of the seed catalogue! Imagine a four-square contest, where our suffrages will be asked by:

1. CHAMPION GIANT. (Major George Marne.) *Conservative.* "Large, solid and handsome. Superb strain."
2. TITAN. (Mr. D. Mocrat.) *Labour.* "A perfect type. Extremely vigorous. Full of promise of unique prolific fruit bearing."
3. NONSUCH. (Sir Bentham Mill.) *Liberal.* "Very solid head. Wonderfully robust. Disease-resisting."
4. TENDER AND TRUE. (Mrs. Eve.) *Independent.* "Excellent and very beautiful. All heart. Delicious."

I am thankful that I am not called to make my choice between these names. It is hard enough to resist name-influence in selecting my onions and peas. My hand trembles as I now reject "Royal Favourite" and order one packet of "Champion of England" instead.

And Shakespeare asked: "What's in a name?" But it must be remembered, as his excuse, that he put his foolish question into the mouth of an extremely young person. —(Lady) LAURA RIDDING, *Hants.*

CALYPSO BOREALIS.

ONE is sometimes disposed to envy the happy man who can grow orchids and, perhaps, unduly admire the products of his greenhouse. Everyone, however, who owns a piece of ground or a flower pot and some suitable soil, may gratify his ambition to grow some of these choice flowers and if the available species lack size and showiness when compared with the products of the glasshouse, they yield nothing in sheer beauty. As an example of the truth of this, take Calypso borealis, a native of Northern Europe and America and therefore a perfectly hardy plant in this country. It is conspicuous from the fact that it produces but a single broad leaf, very thin in texture. From the axil of this in summer, a slender sheathed stem pushes out bearing a solitary flower, something like a cypripedium in shape and of an exquisite rose colour.

Can such a gem be grown in the open air? you ask. Certainly it can and, although special soil and cultivation in some directions are necessary, it is not more difficult than a geranium or any other average plant. Where grown in the open ground, a half shaded site should be chosen, preferably in the rock garden or on the margin of a bog, for, in such spots as this, it is far less liable to be disturbed than where grown among a varied collection of plants. Its chief requirements, in the way of soil, are a light rich mould in which constituents of a vegetable nature predominate. An annual top dressing of well decayed oak leaf-mould or coconut fibre is especially valuable each spring, for this not only feeds, but also assists in retaining moisture and, more important still, in keeping the roots cool. In pots, drainage should be the first thought, for, while it loves moisture, it detests stagnant wet and quickly perishes when continually exposed to this. Pot moderately firmly and stand in a similar half-shaded position, taking care that the pot itself is well screened during summer and does not become hot. In place of the annual top dressing, advised for plants grown in the open ground, a portion of the surface soil should be annually picked away in early spring and replaced by a layer of fresh compost of a similar nature to that in which the plants were potted. See to it that the soil never becomes dry at any time, but exercise special care in this direction during summer, while the leaf and flower stem are in active growth.—HAVELOCK.

RHODODENDRON NOBLEANUM.

IT is more than seventy years since Messrs. Standish and Noble of the Sunningdale Nurseries crossed the blood-red Rhododendron arboreum with R. caucasicum, producing thereby the fine hybrid known as R. Nobleanum. We do not make nearly enough use of it. Except in the grounds of those who have contracted the modern disease rhododendronitis, it is only here and there that one's eyes are gladdened with its midwinter glow. Yet it is as hardy as the universal R. ponticum, a quality inherited from its Caucasian parent, and may be grown successfully in any part of Great Britain where the soil is free from lime. In a mild winter such as the present has been so far (I write on Christmas Day), R. Nobleanum is simply priceless, lighting up the gloom of the winter solstice with a profusion of crimson bloom. It is true that the display may be quenched by a single night's frost; but it is a notable feature in this shrub that it always has a number of flower buds in reserve to replace the blossom destroyed so soon as the calamity is overpast.

Noble's original cross has been repeated several times, sometimes probably reversed, with the result that there are several forms of R. Nobleanum in cultivation, none of them, so far as I have seen, equal in stature or richness of colour to the first, which is now, unfortunately, difficult to obtain.

The present season has been ideal for this rhododendron. Owing to the cold, wet summer, the bushes opened no flowers in October as they usually do here, thereby escaping 5° of frost which we had early in November. Since then they have increased steadily in glow, and will carry on so long as the weather remains open. This hybrid is pretty generally grown in pots for conservatories, which they furnish very prettily; but the flowers under glass never equal the rich hue of those borne in the open.—HERBERT MAXWELL, *Monreith.*

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CORRESPONDENCE

NERINE MRS. W. R. LYSAGHT.

SIR,—I quite agree with the remarks made by Mr. F. H. Chapman in your issue of December 13th, 1924, regarding nerines, and it has always been a puzzle to me why they are not more largely grown. In these days there is a wonderful variety, and when in Cornwall some two or three months ago I saw some extra fine nerines, almost a glowing scarlet when the sun was shining on them. The plants of N. Mrs. W. R. Lysaght illustrated in THE GARDEN for November 15th last were identical, and from the same cross. Like Mr. Chapman, I have raised many seedlings, and it is the first time that I have noticed such a striking similarity in the progeny, although some seedlings were very much alike. These, however, were as a rule of no great merit, and were generally consigned to the rubbish heap. One of the most interesting jobs in gardening is the raising of seedlings, especially when one has chosen the parents and duly mated the twain.—T. W. BRISCOE, *Chepstow*.

HIPPOPHÆ RHAMNOIDES IN WINTER.

SIR,—Nearly every gardening paper at this season of the year speaks of the advantage of coloured stemmed shrubs, and your correspondent (December 27, 1924, page 862), gives the names of a great many desirable shrubs. Why is it that one so seldom sees the beauty of Hippophæ Rhamnoides mentioned in this connection? Its stems are a rich shade of brown with an attractive grey bloom over them. The bold growth has much more artistic character than most other coloured-stemmed shrubs, with the added interest of long spines and plump golden brown buds along the branches. The male plant is the most attractive in winter, but the female carries bright berries in the autumn.—GWENDOLYN ANLEY, *Woking*.

FASCIATED FLOWERS OF IRIS STYLOSA.

SIR,—I enclose a photograph of a plant of Iris stylosa having the flower perfectly fasciated. The plant is in a very warm situation in the corner of a south border against a wall, the soil being largely sand. All the flowers produced are fasciated like the one shown, and at the moment of writing there are three flowers in bloom. The foliage is shorter and narrower than usual, and the flower-stems are stout and short. All the parts of the flowers are duplicated.—I. R. L. WILSON, *Charterhouse, Godalming*.

A PLANT OF IRIS STYLOSA WITH FASCIATED FLOWERS.

SNAILS AND SLUGS.

SIR,—In THE GARDEN of December 27th, 1924, I see it is stated in a note, in reply to a query by a correspondent regarding slugs, that "there is no chemical preparation that can be used to destroy the slugs without injury to the plants." It does not seem to be generally known that powdered alum will effect the destruction, without the least injury to the plants, of both snails and slugs, and that once they come into contact with it there is no chance of their escaping, except to die. They cannot slough it off, as they can do salt and soot. And a strong solution made by dissolving a lump of the material in boiling water and applying it as hot as possible, so that the steam may find its way into the crevices and air spaces, is invaluable for exterminating them from refuse heaps and other harbours where they hibernate and breed. Both adults and eggs are effectively destroyed by this means.—A. D. RICHARDSON, *Edinburgh*.

CINERARIAS WITH STRIPED FLOWERS

SIR,—I have been watching with much curiosity the development of the flowers of a star type of cineraria which has flowers of a pale mauve colour striped with dark blue, as I have never seen this freak (if it may be termed so) in either of the stellata or star type before, and I am curious to know if any reader of THE GARDEN has met with any like experience.—HENRY SQUELCH, *Chislehurst*.

EPIPHYLLUM COCCINEUM AS A WINDOW PLANT.

SIR,—Until living in this country I had never seen the above plant kept in a cottage window; but that it can be so grown and flowered I have, on more than one occasion, had ample proof. True, the seen specimens were on the small side, but this would be due, mainly, to the plants being rooted on their own roots and not grafted, as most of the plants are that one meets with in big gardens. Of course, own root plants attain a good size in time, but it takes longer to obtain large plants this way than it does when they are grafted on a stronger-growing cactus—to which family this plant belongs, the epiphyllum being a sub-genera of this extensive genus. Quite recently, the end of November, I had an illustration of the slow-growing nature of this plant from the cutting stage. The plant was in the possession of a railway worker, who had a piece of growth (or a slip, as he termed it) given him on the occasion of his wedding twenty years ago—the plant being now in a 5in. pot, about 15ins. high and 10ins. or so across. This specimen was housed in an outhouse adjoining his cottage, the only warmth supplied coming from the chimney of the living-room against the end of which the outhouse was built. The foregoing evidence goes to show that the epiphyllum will stand tremendous extremes of warmth and cold—for in its growing season it appears to revel in a stove temperature, and yet it will withstand the naturally variable temperatures of such places as mentioned. And what is more, these plants flower—thus proving the epiphyllum to be an excellent plant for the cottage window or the drawing-room, being not too fastidious in its requirements and attention.—C. TURNER.

LILIUM AURATUM.

SIR,—From time to time I have seen illustrations in THE GARDEN of Lilium auratum. I thought perhaps that the enclosed snapshot

LILIUM AURATUM IN VICTORIA, B.C.

of this lily growing in my garden in Victoria, British Columbia, might be of interest.—JOHN HUTCHINSON, *Victoria*.

FLOWERS BLOOMING IN THE OPEN AT CHRISTMAS.

SIR,—The enclosed list of over two hundred distinct species of flowers found in bloom during Christmas week may be of some interest. They are all growing in West Porlock, either in Mr. G. W. W. Blathwayt's garden or in mine, and none has received any artificial protection.—N. G. HADDEN.

Abelia grandiflora
Abutilon megapotamicum
A. "Canary Bird" and red variety
Acacia falcata
Achillea Lewisii
Anemone blanda
A. coronaria
Arabis albida
Antirrhinum majus
Anthemis Cupaniana
Anchusa myosotidiflora
Aubrietia vars.
Azara microphylla
Berberis Darwinii
B. verruculosa
Borago laxiflora
Buddleia auriculata
Brachysema
Campanula persicifolia
C. pyramidalis
C. Portenschlagiana
C. Vidallii
Carpenteria californica
Calceolaria alba
C. amplexicaulis
C. integrifolia
Cassia corymbosa
Cassinia fulvida
Chimonanthus fragrans
Cheiranthus linifolius
C. "Newark Park"
C. "Harpur Crewe"
Clianthus puniceus (red and white vars.)
Chrysanthemum indicum (many vars.)
C. frutescens (white and yellow)
C. maximum
Crocus Imperati
C. versicolor
Cyclamen coum
C. europæum
Cytisus capitatus
C. racemosus
C. monspessulanus
Coronilla glauca pygmæa
C. valentina
Cuphea ignea
Citrus (citron and bitter orange also carrying fruit)
Correa Harrisii
Cistus Lorettii
Chorizema cordatum
Clematis lanuginosa var.
Ceanothus Veitchii
C. "Gloire de Versailles"
Cineraria stellata
Convolvulus Cneorum
Daphne Laureola
Desfontainea spinosa
Diplacus glutinosus
Dianthus plumarius vars.
Dierama pulcherrimum
Dimorphotheca aurantiaca
Diosma ericoides
Delphinium Ajacis
D. Staphisagria
Datura sanguinea
Eccremocarpus scaber
Erica carnea
E. Darleyensis
E. mediterranea
E. gracilis
E. melanthera
E. Veitchii
Erigeron mucronatus
Eryngium "Violetta"

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Eupatorium Weinmannianum
Euphorbia Wulfeni
Erodium corsicum
E. hymenodes
Escallonia macrantha
E. montevidensis
E. Langleyensis
Fatsia japonica
Fuchsia Cottinghami
F. thymifolia
F. triphylla var.
F. garden hybrids
Galanthus nivalis cilicicus
C. Elwesii
Gentiana acaulis
G. sino-ornata
Geum coccineum
G. Heldreichi
Grevillea rosmarinifolia
Hamamelis mollis
Helianthemum vars.
Helleborus niger
H. caucasicus
H. orientalis
H. guttatus
Hydrangea hortensis
Iberis sempervirens
Iris unguicularis
Jasminum nudiflorum
J. grandiflorum
Kennedya Comptoniana
K. rubicunda
Kerria japonica fl. pl.
Lavendula dentata
L. Stœchas
Lithospermum prostratum
L. rosmarinifolium
Linaria triornithophora
Lobelia Cavanillesii
Lonicera fragrantissima
L. Periclymenum
L. Standishii
L. sempervirens
Lychnis coronaria
Lathyrus odoratus
Lapageria rosea
Lupinus polyphyllus
Menziesia polifolia
Medicago arborea
Malvastrum phœniceum
M. Munroanum
Mesembryanthemum (2 spp.)
Meconopsis cambrica
Matthiola (Stock)
Nicotiana affinis
Nandina domestica
Nemesia strumosa
Nigella damascena
Œnothera odorata
Omphalodes cappadocica
Phlox Arendsii
P. repens
Pelargonium artemisiæfolium
P. Ivy-leaf vars.
P. zonale vars.
P. sweet-scented vars.
Pentstemon heterophyllus
P. tubiflorus
P. garden hybrids
Polygala Chamæbuxus
P. Dalmaiseana
Prostanthera rotundifolia
Potentilla nepalensis
Primula capitata
P. glycosma
P. japonica
P. burmanica
P. Juliæ and hybrids
P. helodoxa
P. malacoides
P. obconica
P. vulgaris vars.
P. veris vars.
P. sikkimensis
Papaver orientale
Pieris (Andromeda) floribunda
Pulmonaria saccharata
Rosmarinus
R. prostratus
Roses (Teas, Hybrid Teas and Polyanthus)
Rehmannia angulata
Reseda odorata
Rubus bambusarum
Salvia fulgens
S. Greggii
S. Grahami
S. rutilans
Saxifraga Haagei
Schizostylis coccinea and var. Mrs. Hegarty
Spartium junceum
Solanum jasminoides
Sollya heterophylla
S. Drummondii
Spiræa Thunbergii
Senecio Greyii
S. Monroi
S. Lanatus
S. multibracteata
Scabiosa (annual)
Sisyrinchium californicum
Sedum Palmeri
Teucrium latifolium
Tropæolum majus
Vinca major
V. difformis
Viola odorata (single and double)
V. cornuta
V. tricolor
Valerian (Centranthus
Verbena radicans
V. chamædrifolia
V. venosa
V. bedding vars.
Veronica Catarractæ
V. speciosa (several vars.)
V. hybrids
Viburnum rhytidophyllum
V. Tinus

FORCING POTATOES IN GREENHOUSE & FRAME

ONE rather wonders why potatoes are not more frequently forced by those who have the accommodation. My own experience is that if you make up your mind to grow anything, and start it, you will find room for it somehow. Where a frame can be provided the question of room is not likely to be so difficult. For early forcing the method of forcing in pots will be preferred, the successional crops being grown in frames.

Eight or nine inch pots are best suited for the purpose, and there should be no difficulty in obtaining these now that many of the chrysanthemums are getting over. These pots should be thoroughly dried and may then be brushed clean with a stiff brush. I know that I shall be considered a heretic in not advising that they be washed, but for a purpose like this I consider it a waste of time, and it would certainly not make the slightest difference in the crop. That presumes, of course, that they are not unduly dirty. I do, however, insist that the pots be perfectly dry. At this time of the year that will mean drying them over the hot-water pipes or the boiler. The pots will, of course, again be available for chrysanthemums after the potatoes are used.

No elaborate drainage will be needed—merely one large crock and a covering of leaves. Rather more than a double-handful of soil will be sufficient to put below the tubers, else there will not be much room for top-dressing. The tubers are just placed on the soil without any attempt to press them in, and sufficient soil is added completely to cover the tubers by about an inch. Care must be taken not to injure the growths, if any. In this way the pots will be little more than half full, the remaining space being left for top-dressing.

In point of earliness I doubt whether there is any advantage in getting the tubers to sprout prior to planting, but there would be the opportunity of limiting the number of growths, and to some extent the advantage, in the matter of space, in not having to pot the potatoes quite so soon.

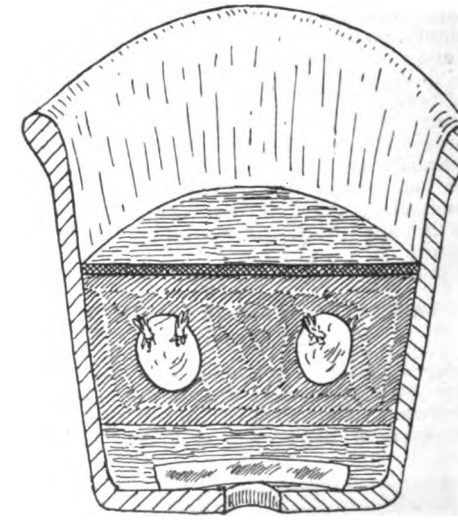
In the ordinary garden there should be no difficulty about soil because the soil which has been used for chrysanthemums will do well for the purpose. The roots should be shaken free from soil and this should be passed through a ½in. sieve, and then freshened up by the addition of some leaf-soil and sand. The addition, also, of some manure from an old mushroom bed will be an advantage.

Here I may mention a neat little method of catch-cropping which I have practised

with success. When the potatoes have been potted and watered, a thin layer of very fine soil or leaf-soil is sifted over the surface. On this is sown either mustard or cress (usually a few pots of each). If the pots are placed in a warm house this may be cut before the potato growths appear above the surface.

The potatoes must not be grown in a very warm house, else the growths will be weak and there will be less prospect of a good crop of tubers. As soon as the growths appear above the surface an abundance of light should be given, and a position fairly near to the glass. Top-dressing and staking may be done at one operation. With the soil for this purpose may be added some mushroom manure and some good fertiliser, such as Peruvian guano, a good watering being given afterwards to settle the soil. When the roots have laid hold of this soil, watering with liquid manure may be freely given in weak doses.

Support may be given to the growths by setting some birch or hazel boughs around the plants. Another method is to put four sticks in the pots and to encircle these with raffia. I might here mention that when the potatoes are grown in frames there will be no need to give any support. When growth is pretty well completed the pots may be put into a cold frame to be used as required. A little hardening will be necessary when



this practice is adopted. The advantage of using pots instead of frames is that the pots may be moved about, and valuable space is not taken up from beginning to end of their career, as would be the case in a warm pit or fixed frame.

Potatoes may be forced in a heated pit or in a frame standing over a hot-bed. In either case the cultivation is practically the same. A depth of 10–12ins. of fairly good soil will be necessary. The distances recommended are 8ins. between the tubers and 15ins. between the rows. A little soil may be added by way of top-dressing, but this is neither usual nor necessary. The depth of the frame should be so arranged that the growths are not far from the glass, nor yet sufficiently near for them to touch the glass, which would endanger their being injured by frost. Covering of the lights will be necessary on cold and frosty nights. Radishes or carrots may be sown between the rows if desired. Obviously only dwarf and early varieties are suitable for forcing. W. F. ROWLES.

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SIMPLE GARDENING

COMPOSTS FOR SEEDLINGS AND SEEDS.

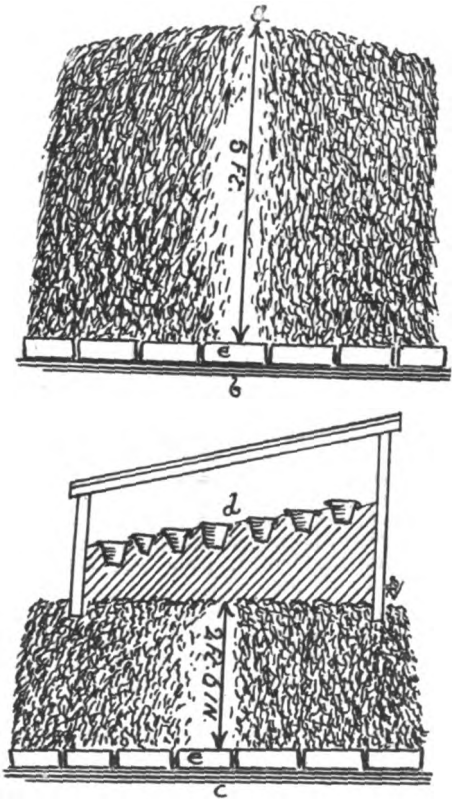
IN the pots, pans and boxes in our greenhouses there are thousands of tiny seedlings of tender and half-hardy plants. All these seedlings—or the best of them—must, in due course, be shifted to small pots, then to larger pots or into boxes and, perhaps, from the latter into frames or sheltered borders. In every case it is necessary to prepare a special mixture of soil, and for the benefit of those seedlings essentially belonging to the greenhouse great care is needed in selecting the ingredients. Some seeds are not larger than tiny grains or particles of dust and should not be covered at all when they are sown. I name only two kinds, tuberous begonias and gloxinias. These and similar ones are best sown in soil in pots or pans. The seed vessels are washed and dried, crocked with clean potsherds and three-parts filled with a compost of light loam, leaf-soil and sand, all passed through a fine-meshed sieve. The surface is made level and the soil watered; when partly dry the seeds are sown as thinly as possible, and the pan covered with glass and brown paper. The even moisture causes germination. For larger seeds, such as those of primulas a rather coarser compost of the same ingredients will answer. The seeds must be lightly covered, and very similar treatment is right in regard to numerous seeds of annuals, the resultant plants of which may be flowered in the greenhouse or the garden. For larger seeds and strong-growing plants, loam two parts, leaf-soil one part, old mortar rubble or sand one part, will do as a compost in still coarser condition.

EARLY FRENCH BEANS.

Of course, I must say, first of all, how difficult it is to grow these satisfactorily early in the year unless artificial heat is adequate. If the day temperature of the house or forcing pit cannot be maintained at summer heat, do not attempt to grow these beans under glass at all. The low, well heated pit, preferably a lean-to facing due south, is an ideal structure for the purpose. Osborn's Forcing, Ne Plus Ultra and Williams' Earliest of All are suitable varieties. The crops should be grown in flower pots, those 6½in., 7in. and 8in. in diameter are the best, using them in the order above for earliest, second early and latest batches of plants. They should be washed clean and thoroughly dried, the crocks also. Ample drainage is essential as water is needed by the plants very frequently when the soil is full of roots. Over-dryness of the soil causes the flowers to drop off prematurely and encourages red spider on the leaves. No flowering plants should be placed in the same house as the beans on account of the frequent syringings necessary and the regular atmospheric moisture coupled with the closeness generally—because no ventilation should be given. The best compost is one of good fibrous loam, cut and stacked quite six months, two-thirds; and rotted manure, one-third. The pots should be three-parts filled, three seeds in each pressed into the soil 1in. deep.

HOT-BEDS.

These have a fascination for all who love their gardens and wish to make them both interesting and beautiful. The hot-bed, properly made and managed will be very useful in the raising of seedlings and the rooting of cuttings. There is always a nice heat and some moisture surrounding the seedlings and cuttings, and it is the warmth, coupled with the moisture, that promotes root action. In cooler conditions the cuttings would take a long time to strike root, and many would die; seeds without heat would



be slow to germinate, many would rot in the soil. But the hot-bed is dangerous to plant life, too, if it is not properly managed. The heat may be too high or the atmosphere too damp. The first is regulated to a great extent if the bed is well built and the materials composing it thoroughly prepared. The second is regulated mainly by judicious ventilation of the frame placed on the heap. Strawy manure, two-thirds, freshly fallen tree leaves, one-third, well mixed, will form a bed in which the heat will remain steady for several weeks. The littery manure must be spread out thinly in a cool shed and turned over several times for a week or so to get rid of the rank gases. The base should be a dry one and the bed *a* should be evenly built up to a height of 5ft. The section is shown at *b*. In due time the bed will settle down to 2ft. 6ins. as shown at *c*. The letter *d* shows how pots or boxes may be plunged in the soil on the bed, or crops may be grown in the soil. The loose basal bricks are shown at *e e*.

HOLLYHOCKS FROM SEEDS.

When the hollyhock disease practically killed the stocks of plants in this country a great effort was made by our florists to supply seeds instead of plants. This effort met with great success, almost at once, especially as regards the single-flowered section. Then followed more fixity in the double-flowered one, and to-day, every cultivator may soon raise a big batch of plants of either, or both, sections and obtain a large percentage of double or single flowers true to form and colour with a few exceptions. A normal hollyhock plant attains a height of 7ft. 6ins. in one season, so we can at once realise the fact that growth must be rapid at some stage. As even the seedlings possess large leaves they must have ample room to grow in, so the seeds should be sown 1in. apart. I find pans better than boxes for the seedlings; drain the clean pans well, use a compost of mellow loam and sweet leaf-soil in equal proportions. Cover the seeds half an inch deep after sowing them on watered soil; place the pans on a stage till the seedlings appear, then lift the pans to a shelf nearer the roof glass. Transplant the seedlings quite close to the rims of other pans; at the next stage singly into small pots, then a re-potting into 6in. pots and cold frame treatment prior to final planting.

FUCHSIAS FOR GREENHOUSE AND GARDEN.

Thirty years ago the fuchsia was regarded as one of our principal greenhouse plants for summer flowering. Later it was used freely for bedding-out associated with other kinds of plants, all combining to form a bed group equal in beauty to the groups found in our conservatories. The fuchsia is very popular in these days; it can be rested during the winter months and stored in sheds without the expense of artificial heat. Plants so treated should be placed in the greenhouse very soon now. One application of water to the soil will be sufficient for ten days, but every morning the branches should be syringed with water of the same temperature as that of the house. In the course of a fortnight new shoots will grow and it will be clearly seen how far back some of the ends of the shoots have dried; these dead tips of shoots should be cut off. When the young branches are about 1in. long, the plants should be carefully turned out of the pots and the old ball of soil much reduced to allow of re-potting into smaller pots. It may be necessary to cut off a few of the old roots, too. A very suitable compost for all fuchsias is made of the following ingredients: fibrous loam, two parts; leaf soil, one part; old bricks pounded almost to dust and old lime rubble, one part. To every bushel add a single handful of bonemeal and a 5in. potful of wood ashes.

GEORGE GARNER.

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SEED POTATOES

THERE is a distinct danger in the constantly recurring advice to prefer small tubers when selecting seed potatoes, and growers ought to know wherein the danger lies. Before pointing it out, however, the admission must be made that small immature tubers from a clean crop are undoubtedly best—emphasis being laid on the words "immature" and "clean."

Potatoes are subject to many diseases, many more, indeed, than gardeners realise; many of these diseases are not properly understood and of some there is no definite information at all. One point about many of these is that they result in more or less stunted growth and the consequent small crop, small in total weight, but more particularly small as regards the size of individual tubers. It is very often the tubers which carry these diseases, and so, by selecting small tubers, the grower is taking strong steps to secure a crop infested with the same disease. a small and disappointing crop.

Again, potatoes revert or, as the specialists know, they produce odd plants which have distinctly wild or primitive characteristics and are not true to variety. Invariably the tubers at the root of such a plant are small, hence another danger—that many plants are worthless "wildings."

Lastly, small potatoes may be the weaklings of mature and well ripened plants. No one will argue that the best result can be obtained by using as seed tubers which are the worst of a previous crop. Many good old varieties have passed out of favour, and maybe out of ken altogether, by continuous selection of small tubers for seed. The remedy—for there is one—is not far to seek. If small tubers will be used, then they must come to the gardener or farmer with a guarantee that they are the produce of a clean crop (the word clean is difficult to define, but I think readers will see what I mean). Moreover, they should preferably be immature, *i.e.*, from a crop that was checked by being lifted or frosted before it had time to reach its full development. Potatoes from the North are often best in this respect.

But there is another and better remedy, and that is to use large tubers as seed instead of small. If the grower looks over a pile of potatoes he will soon see the best—not the largest, but the best in shape, size and appearance. These will sprout easily and at planting-time may be cut into two or even three. If the flesh is clean when cut, then the chances are that the tubers are really sound, the best. This is an old plan with potatoes, remember, but it is still a good plan, and we cannot do better than repeat our first phrase, there is a danger in small tubers. CLYDESDALE.

COB NUTS

COB nuts are enjoyed by everyone, and it is a wonder that more attention is not given to their cultivation, especially as a crop will sometimes yield as much as £50 per acre, while this class of produce has an advantage over ordinary fruit in its keeping qualities. Many orchard products, on account of their perishable nature, have to be marketed at once, and often for what they will fetch. This is not the case with cobs, and the grower is, consequently, not handicapped. His crop, with ordinary care, will keep for months after being gathered, and the nuts are not liable to get bruised in packing and travelling. Nuts, of course, are in great demand during the festivities of the Christmas season, and a rise in price may be looked for as it approaches, especially if there has been a short crop.

The trees should be planted in a somewhat sheltered position, as they suffer from the effects of wind, and should be about 12ft. apart each way. The space between may be profitably utilised before the trees come into bearing by planting small fruits underneath, such as gooseberries, currants and strawberries. A row of standard plums, damsons or apples may also be put in. The fruit bushes must be removed when the nuts attain their full size.

The training of the young nut trees is important. A start should be made with a good clean stem 18ins. to 2ft. in length, and the pruning continued season after season, so that the tree ultimately assumes an open bowl-like shape. The branches should be evenly balanced all round — about half-a-dozen of them radiating from the central stem; in fact, in a well trained tree a gigantic basin could be dropped into the centre, and the branches of the tree would support it on every side. There must be no branches running crosswise, and each year all suckers and wands should be removed as soon as they appear. From this brief description it will be seen that the pruning of nut trees is radically different from other kinds of tree pruning.

The nuts generally planted are the Kentish Cob, a bold thick-shelled nut. This cob is very prolific, bearing nearly double the crop borne by other kinds. The Cosford is a rounder nut and a good bearer, but the shell is very thin and liable to be selected by mice and squirrels. Webb's Prize Cob is larger than the Kent Cob, and the nut makes a better sample for market. The Red Filbert (Merveille de Bolwyller), a very large cob, is useful for gardens.

Oswestry. R. E. DAVIES.

CATALOGUES RECEIVED.

A fine catalogue has reached this office from Messrs. Alexander and Brown at Perth. Perthshire is a noted gardening county, and it should be proud to have a seed house of such distinction in its neighbourhood, for the seeds listed in this catalogue are of noted quality. We should also like to draw attention to the excellent production of the catalogue, one of the best that we have seen. It is printed by a local house, and both the text and the blocks, plain and coloured, are excellently produced.

Another catalogue from a well known firm in the North is that of "Stronghold" seeds produced by Stewart and Co., 13, South St. Andrew Street, Edinburgh. The list is particularly strong in standard varieties.

Messrs. Dobbie's name is known from Land's End to John o' Groats in connection with all horticultural matters and more especially to those interested in the growing of potatoes. Throughout the past year this firm has maintained, if not surpassed, that excellence which has always characterised its productions of vegetables. It is with pleasure that we bring the notice of the New Spring Catalogue to our readers. It is a handy manual running into 136 pages and is copiously illustrated by means of numerous half-tone reproductions. Half is devoted to vegetables, while the other half is given over to flower seeds, with a separate section on liliums, gladioli and sweet peas, the latter being a strong speciality of this firm and one through which its name has come to the front rank of horticultural firms. It is a catalogue which all our Scottish readers should have.

When contemplating to which firm the year's vegetable list shall be sent the name of Webbs' comes to the mind of the majority of gardeners. For years this firm has retained its reputation for producing flower, fruit and vegetable seeds of excellent quality. The vitality and germinating powers of the seed are known to be of a very high standard and above the minimum percentage prescribed by the Seeds Regulation. The seed catalogue which Messrs. E. Webb and Sons, Stourbridge, have just published is another testimony that they are worthy of a place among the leading seedsmen. Carefully compiled, well illustrated and giving brief but good cultural notes, this catalogue will be most useful throughout the year. Not only does it give long descriptive lists of many varieties of each vegetable and flower, but it offers for sale bulbs for spring planting, and various horticultural requisites.

Expensively produced catalogues do not necessarily signify that the articles described therein are of a similar standard. Although others may be somewhat less luxurious in appearance, the goods advertised may yet be of an excellent quality. This applies to the seed catalogue of the long-established firm of Dicksons of Chester. It contains a wealth of information about flowers and vegetables of which Messrs. Dickson can supply the seed. Mushroom growers would be well advised to try Dickson's improved mushroom spawn, and those who are not practised in the art of growing this delicious crop will find very helpful cultural details in Messrs. Dickson's catalogue.

And yet another catalogue which is well worth studying is that of Messrs. Dickson, Brown and Taits of Manchester, which contains first-class seed lists of vegetables and flowers, and advertises horticultural sundries and various oddments which are not advertised in other catalogues. All kinds of potting material, fungicides, insecticides, orchid fibre, etc., are included. The flower portion of the catalogue is particularly well illustrated with a considerable number of half-tone flower portraits which give an excellent idea of the good strains sent out by this firm.

PUBLICATION RECEIVED.

"Webster's Foresters' Diary for 1925."—This is the twenty-third year of the publication of this excellent diary published by the *Timber Trades Journal*, 8–11, Paternoster Row, E.C.4, at 3s. 6d. net. It contains a great deal of useful information for all who work among trees or are interested in them. Particularly good are the tables for identification and remedial measures in the case of insect pests and fungi. The diary is of handy size and is bound in imitation leather.

New Carnations.—The British Carnation Society has recently registered the following new varieties of carnations:

Gwladys Berry, pedigree seedling, crimson clove, fair fragrance, habit short and bushy, especially suitable for bedding. Stuart Low and Co., Bush Hill Park.

Lady Hindlip, pedigree seedling, white striped red, sweet fragrance, sturdy and free-flowering. Stuart Low and Co., Bush Hill Park.

Viscountess Hambleden, seedling, Benora × Aviator, rich apricot red, striped and flushed with red, distinct fragrance, stiff stem and free grower. Mr. W. Turner, Greenlands, Henley-on-Thames.

Marchioness of Salisbury, seedling, Enchantress Supreme × Britannia, superb pink, good fragrance, long stiff stems, vigorous grower. Mr. R. H. Hall, gardener to Marquis of Salisbury, Hatfield, Herts.

Dainty, seedling, orange ground, speckled salmon pink. Mr. C. Engelmann, Saffron Walden.

Janet, seedling, cerise, fair fragrance, good stem, dwarf grower. Mr. C. Engelmann, Saffron Walden.

Name of Plant. — (Regular Reader).— Saintpaulia ionantha.

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THE LIMITATIONS OF PLANTS

DR. PRAEGER contributed to the last issue of THE GARDEN a frank article on "Plants I Have Killed."

It is only natural that botanists, who at the same time are experienced cultivators—by no means such a common combination as might be expected—in the course of their experience with plants must have a certain percentage of casualties; in fact, the surprising thing, considering the miffiness of some plants, is that the percentage of casualties is so small. If, as I say, experienced cultivators have casualties in their gardens, it is obvious that the percentage of deaths in ordinary gardens increases in an inverse ratio according to the lack of skill, or of insight, of the cultivator, if the proverbial luck of the beginner is not taken into consideration.

From the point of view of this article, plants may be divided into two broad groups, those which are thoroughly established in cultivation and those which are not. In the first group casualties are caused through human agency; that is, that experience has taught us what the particular plant requires for its successful growth and ultimate arrival at maturity. The plant is intimately understood by numbers of individuals; its necessities and economics are described in books and in the horticultural press; therefore casualties above the average are largely owing to the human factor in its cultivation. It may die owing to wrong treatment in a young state, or to being planted in a wrong medium or under unsuitable climatic conditions. It may succumb owing to a hundred and one different causes, each of which is due to the lack of experience of the grower. All these causes are avoidable because the plant's successful cultivation is known and recognised by a large body of gardeners.

This experience is only gained after a number of years. In many cases it is only known from the combined efforts and experiments of generations of gardeners. Now take the case of the second group. Certain plants, even after years of trial in various parts of the country, have not proved themselves amenable to cultivation in gardens. In many cases the ordinary terms of success or failure, such as hardiness, susceptibility to insect pests, drought-resisting and so on, go by the board. There may be no conceivable reason why the plant should not grow, and yet it won't; it is stubborn, for its interior balance is upset. It is analogous to placing a shepherd in a city office or *vice versa*. There is no doubt that some plants are placid and adaptable, while others are so highly strung that the slightest change of environment and mode of life is fatal.

As this change of environment and mode of life is so important to a plant, it is as well to find out all there is to be known, which may not be much, about an uncommon plant. Because you see it flourishing in a friend's garden is no insurance that it will succeed in yours. Probably it will; possibly it may not. Here are a few of the main points to look out for:

1. Soil conditions. Are they the same as that in which the plant flourishes? If not, can you approximate them by additions?
2. Light and shade. Do you know how much sunlight the plant requires?
3. Protection. Was it sheltered from the wind? If so, which wind?
4. Water and moisture. This follows on point one. Does your soil retain too much or too little moisture? Is winter drought or winter wet a necessity?
5. Space. Do you know its mature size, and are you allowing for this?
6. Associations. Is it a plant which likes companionship? Does it like to grow in groups or is it solitary?
7. Feeding. Does it require feeding, and if so, what food?
8. Hardiness. Is it hardy or not? This word "hardiness" is constantly misused, for hardiness is a question of degree. Many casualties are put down to a plant not being hardy when the cause of death may be errors in any one of the above seven points. For instance, many plants are useless around London, because they are cut with the spring frosts and yet farther north they may flourish exceedingly, because they start into growth later. These plants are called soft, which is technically untrue. Their balance is upset.

I should also point out that there is a converse to this argument. Supposing a plant will grow in A condition of soil with B amount of moisture and C hours of sunlight, and so on. That may constitute a happy mean of its limitations, and so latitude may be allowed on either side. On the other hand it may prove to be the extreme at one end of the scale or the other, and so, though you can add more hours of sunlight, you cannot grow it in deeper shade. Yet a bird in the hand is worth two in the bush, and if you know, or can find out under what definite conditions a plant will grow, try to equal them and so keep down casualties, which are unavoidable in experiments.

Remember that every plant has a statute of limitations and if you go beyond it, the balance is upset and the plant dies. Some gardeners have second sight about a plant's requirements; they are the lucky ones. Others, who like experimenting with unknown plants, see their casualty lists creeping up.

E. H. M. C.

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THE CULT OF THE POLYANTHUS

THERE ARE FEW SPRING FLOWERS WHICH PROVIDE SUCH AN EXCELLENT DISPLAY AND CAN BE PUT TO SUCH AN INFINITE VARIETY OF USES AS THESE MANY FLOWERED PRIMROSES.

IT is doubtful if there is a more generally useful long-blooming spring flower than the old-fashioned polyanthus, and on the score of beauty too it can certainly claim a very high place. Good as the old plant of our childhood's days appeared, it must be admitted that the modern strains are infinitely superior in every way. Cleanness of colour, size of flower, strength of the trusses and the manner in which they are held high above the rosette of leaves—in all these points the improved strains score enormously.

That, of course, is all on the side of garden display and does not apply to some of the interesting old-fashioned forms that are still as good as ever, from the point of view of those who are keen on unusual or old-time flowers. It would be a pity, for instance, to miss Jack-in-the-green, a crimson form surrounded by a foliaceous calyx, known botanically as Primula officinalis macrocalyx. Are there not, too, the queer hose-in-hose forms, in white, scarlet, crimson and gold, and deep yellow ?

THE POLYANTHUS ENJOYS THE SHADE OF THE WOODLAND.

These have smaller flowers, but are very curious, having a flower within a flower and both similarly coloured. Nor must we forget the gold and silver laced forms, which—though again small—are in the richest possible colouring. In some cases the flower is crimson, in others so deep a brown as to appear practically black ; while in every case each bloom is edged by a narrow but very distinct gold or silver line.

Of modern bedding strains, those who appreciate light colours—and it must be recognised that these carry well—it would be very difficult to beat the Munstead strain. In this the flowers are of enormous size and splendidly clear colouring, with well defined eye and ranging from pure white through cream and yellow to a rich orange in colour. Apart from these are the equally large crimson, brown, red and bronze shades, which for depth and richness are unsurpassable. Finally, let us not forget the distinctive blue, which in some cases really is blue, although in others it is mauve or heliotrope. Selection of the seed parents in the garden will soon work wonders in the direction of blueness.

We have spoken of their utility as spring bedding plants of a high order, but one should look farther than that in the widest conception of the word garden. Nearly allied to the common primrose and sharing its love for partial shade, the polyanthus is splendid for massing, either in the orchard or the wild garden, and an ideal combination can be planned by long irregular drifts of both primrose and polyanthus, used in such a position. First, even as early as February in a mild season, one gets masses of the lovely primrose, and then, just as these are beginning to fail and fade, the polyanthus—hitherto a trifle spotty in its effect—blazes into full glory, thus prolonging the display from February to mid-April or even later.

Where used for natural plantings, the best effect is obtained from the lighter colours : the reds and crimsons have a partially foreign look that is out of consonance with their surroundings. These semi-woodland plantings are often remarkable for their lasting powers and it is no uncommon sight during the April days to see those plants that are set out in the formal beds badly flopped ; while a short distance away, 'neath the leafy trees, the stout stems and succulent leaves are sturdily upright and gorgeously beautiful in the light and shadow of the dancing sunbeams that pierce their way through the—as yet—thin overhead covering.

This brings up a cultural point of prime importance : the need for shaded summer quarters in which to grow the plants. If left in the hot, dry, sunny beds, the polyanthus becomes herbaceous instead of evergreen, and all the foliage disappears under the heat of summer, to reappear with the advent of the autumn rains. This, naturally, is extremely prejudicial to first-class flowering, and is completely avoided by planting the roots that are divided, or the seedlings that have been raised, in a border of rich soil but well in the shade.

Personally, we are all in favour of seed as *the* method of propagation, for there cannot be a question that, when seedling and divided plants are flowered side by side, everything is in favour of the former. The contention sometimes advanced that division gives larger plants is incorrect ; that is to say, if the seedlings are given proper treatment from the outset. This, combined with early sowing, will give you plants that are nearly as large as the divisions themselves by mid-June, and in the following three months the seedlings gain all the way.

Early sowing may be taken to mean one of two dates—either under glass in January or directly the seed is ripe in July in the open ground. Whichever period is favoured, sowing of the thinnest order should be practised, so that each little plant has room to develop to its utmost capacity, without hindrance from its neighbour. Sowings made in July will not flower until the following spring twelve-months, those made under glass in January requiring about fifteen months.

In the case of indoor sowings, the plants should be transferred to cold frames as speedily as possible for the sake of future sturdiness, and, in either case, pricking out should be done when the fourth or fifth leaf has been formed. A deeply worked shaded border that has been well manured two or three months previously is ideal for pricking out, and each seedling should be 8ins. to 10ins. from its neighbour. This may sound

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excessive, but please remember that we are growing *large* plants, and, as a set-off against the space required, fewer of them will be needed when planting time comes. Pricking out completed (and both in the case of July or January sowings this may generally be done in early April), well water the plants overhead and repeat this at intervals—if the weather continues dry—until they are well established.

Through the spring and summer but little attention will be needed, save an occasional hoeing to keep down weeds; while, in long spells of drought, the hose may be turned on to them once a week until the soil is thoroughly soaked. Towards the end of July or early in August, surface roots begin to evolve from the neck of the collar of the plants, and this is just the moment when a top-dressing of rich earth is amply repaid. The material from beneath an old hot-bed, passed through a fine sieve, can scarcely be excelled. Work this close up to the plants, and again water well, and an almost magical output of strong deep green leaves will result.

A BORDER OF THE LIGHTER COLOURED POLYANTHUS OF THE MUNSTEAD STRAIN.

Planting in the permanent quarters should not be deferred too late into the autumn, mid-November being quite late enough for the last plantings. Lift with a good ball of earth—an easy matter, owing to the mass of fine fibrous roots—and transfer to the beds and borders with the least possible delay. The best soil is a rich, somewhat greasy yellow loam, but any soil will give superb masses of flowers if it is well manured and the soil is not allowed to become dry in March and April.

Splendid results may be obtained from seedling polyanthus where these are grown in pots and flowered in a cold frame: for not only is it possible to anticipate the outdoor display by some weeks by the aid of this protection, but absolutely spotless purity is ensured. Where a few plants are grown in this way, it is worth while to procure enough of the fibrous greasy loam—mentioned above—for potting, and, in the case of large plants, a 7in. or 8in. pot will not be too large. Drain the pots efficiently, plant in autumn, and at once transfer to cold frames: although the lights should never be entirely closed, except in the case of severe frosts. Keep always evenly moist, but avoid over-watering, and, directly the buds can be seen, begin to feed with weak liquid manure. Under this method, truly enormous flowers of intensely vivid colour will be produced and, if the pots are removed to a cool house, the successional trusses will maintain a decorative appearance for many weeks.

The alternative method of propagation—division—is useful in the case of an exceptionally good form appearing among the seedlings, for one can by this means obtain a good stock of plants comparatively rapidly, and then, by judicious crossing, seed, more or less true, may be procured. Division is a simple matter and readily carried out immediately subsequent to flowering. Lift the plant with the spade and separate into single crowns, each with a few roots attached, and immediately replant these in a semi-shaded border in exactly the same way as with seedlings. They are far more liable to droop, however, and for some days—unless the weather is showery—spray overhead through a fine-rosed can, so as to re-establish as rapidly as possible.

Like its very close relation, the primrose, the uses to which the polyanthus can be put are almost unlimited. Whether planted in beds, masses or drifts, in woodland or in the rockery, in some shaded crevice or nook facing south and west, they give abundant pleasure by their myriads of bright coloured blooms at a time when colour is lacking in the garden.

H. W. CANNING-WRIGHT.

A FINE GROUP PLANTED FOR NATURAL EFFECT AT HALLINGBURY.

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BOOKS ABOUT PLANTS.—I

GARDENING AND LITERATURE.

SO much has been written about flowers and so many people are afraid of reading about them in case they should be bored. They rush to a novel or a magazine and perhaps keep vaguely a standard book on gardens to be pulled out of the shelves and used as a work of reference. To those of my readers who read gardening books as a pleasure and may even possess a horticultural library, I say, like Farrer, "Skip, Aunt Agnes"; at the present moment I am talking to those who may not know the delights of floral literature, and who do not know where to begin.

There are lucky mortals who find delight in spending an hour in reading snippets here and there out of the Encyclopædia Britannica or Mrs. Beeton's Cookery Book. For those I can straightway advise the purchase of Nicholson's Illustrated Dictionary of Gardening, in five volumes, with supplement, a work long out of print but obtainable second-hand at about £5 5s., and a very good five guineas' worth, or Farrer's "Rock Garden, two volumes, published by Jack, or any other standard work on gardening or a class of gardening. But to those who are not such voracious readers, the first start is to find out how others love plants, and see plants, and write about plants. It matters not whether you know the plants described or not, so long as you have a genuine love of flowers, because, after all, you love flowers for their beauty and the enjoyment they give you and it is as easy, though, truth to tell, far from common, to write good English about plants as it is about anything else on which our literature is founded. Once you have become interested it is only a very short step to the fascinating subject of botanical and horticultural history, the folk lore of plants, their physical development and so on. In time, perhaps, you may, if you so wish it, desire to follow up a particular family or genus, or to discover for yourself the reasons for a plant disease or a plague of insects, and so books on specialised subjects are purchased and the nucleus of a botanical library is formed. Then again, the pictorial side may have its attractions, and volumes of books on flowers, with marvellous coloured plates will be sought for, but this is a branch which has passed its heyday, owing to the present-day cost of the best colour printing, and if the best is required, so are considerable knowledge and a deep purse.

In order to acquire a taste for gardening books as literature there are a number of old authors and at least two modern ones whose writing is full of charm and is yet information. Of the old I can bring to your notice William Lawson, whom Miss Rohde calls the Izaak Walton of Gardening. His best known book is called "A New Orchard and Garden," of which the first edition was published in 1618. It ran through many editions and the later ones can be picked up for a few shillings. It describes a North Country garden and breathes the love of the country and of flowers. Probably the most famous of all gardening books is the "Paradisus" of John Parkinson, which first appeared in 1629. Later editions are not difficult to obtain and there are also reprints. Parkinson was always inspired with the simplest delight in all garden flowers and this book is of the pleasantest reading. For those who wish to delve more deeply into the subject of old English books on gardening, before actually purchasing them, I cannot do better than advise them to read Miss E. S. Rohde's two charming books on the subject, "The Old English Herbals," published by Longmans Green in 1922, and "The Old English Gardening Books," published by Martin Hopkinson in 1924. In the first she deals with those which give lists of plants and herbs, but it is a mistake to say that they make dry reading; although they are not suitable for devouring at a gulp, yet they are crammed with quaintness and are full of garden lore. The second deals with such books as were written on the art of gardening. Both of Miss Rohde's books are excellent. They are full of quotations from the various volumes, quotations which whet your appetite to read more.

So much for the old books. New books, which combine gardening and literature, are rather more difficult to advise upon, for people nowadays are too much inclined to take up gardening as a scientific pursuit, or hobby, or whatever you like to call it, with the result that modern books on the subject are written for practical people with little thought as to their literary value. There are, however, two authors who are pre-eminently readable; one is Sir Herbert Maxwell and the other the late Reginald Farrer. As an example of the work of the former, let me commend to your notice "Flowers, A Garden Notebook," published last year by Maclehose and Jackson. In this Sir Herbert tells of his own garden at Monreith, in Wigtownshire; there may be plants mentioned therein which it is impossible to grow in less favoured parts of the country. We may envy his good fortune, but at least he shares it with us in his charming book. And of Farrer's many volumes — they are all so good and so full of rich meat that it is impossible to pick and choose. My choice, however, is made easier by the fact that a number of them are out of print. Of his two great plant-travel books, one, "On the Eaves of the World," is exceedingly scarce, but the second, and to my mind the better of the two, called "The Rainbow Bridge," is still in print and is published by Edward Arnold. In it he describes his second year's journey in the Tibeto-Kansu border and with such charm and such insight that it is surely one of the great books. There is nobody who has such power of carrying his reader with him, whether it be on the crest of a wave of enthusiasm or in the depths of despair because the harvest is not so rich as was expected. Every chapter is spiced with his experiences and his descriptions of the people and of the scenery.

I hope I am not being unfair when I say that Farrer is the outstanding feature in modern gardening literature, as apart from the gardening text books. Other of his earlier books which exhibit the same feeling and felicity of expression are "In a Yorkshire Garden," published by Edward Arnold, and "Among the Hills, a Book of Joy Among High Places," published by Headley Bros. There are others, but they deal more with specialised subjects and will be mentioned later.

By such books as these, then, you may learn that a small, and very select, library may be formed, which will combine both pleasure and profit in the pleasantest form. In further articles, I will give selections of general gardening books and also of works on specialised subjects, but it must be remembered that these are only suggestions from a list which is particularly extensive, for there is no hobby so well served by its teachers as gardening.

M. C. E.

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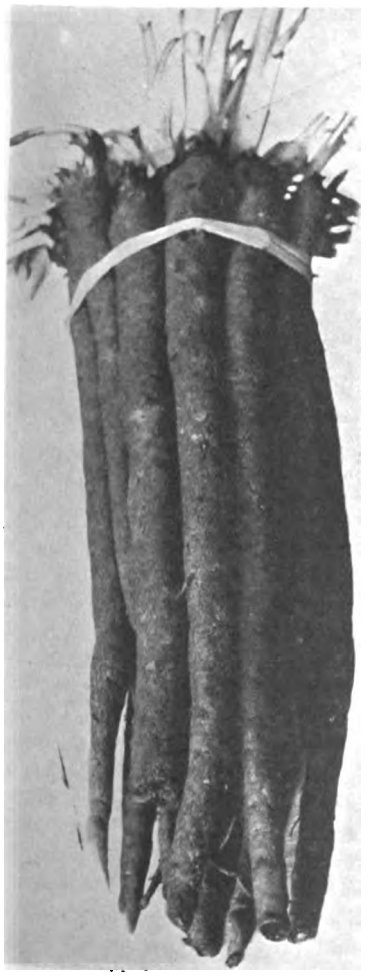
LITTLE-KNOWN VEGETABLES

IN THIS ARTICLE THE AUTHOR DESCRIBES A FEW VEGETABLES WHICH DESERVE A MORE WIDESPREAD POPULARITY IN THIS COUNTRY. THEY ARE OF EASY CULTURE AND GIVE EXCELLENT RESULTS.

A NUMBER of vegetables are not grown in England to the extent they might be. Yet, their culture is, in most cases, no more difficult than that of any other vegetable and they should be most welcome for making a change in the daily diet of many. The reason is that probably few people have heard of them or realised the possibility of growing them in their garden. Below are a few notes on some uncommon vegetables.

CHINESE ARTICHOKE (Stachys).—Although not a striking vegetable, this is worth growing in small quantity in every garden, owing to its curiosity and its ease of culture. The plant produces numerous conical, small, ring streaked, white rhizomes. Propagation is carried out by tubers planted two or three in a clump, 18ins. apart, in any good ground, during March and April. They can be lifted at any time during the following winter.

JERUSALEM ARTICHOKE.—This is more usually considered a forage or industrial plant than a vegetable. A few varieties, however, are well worthy of cultivation in the kitchen garden. Among these, Fuseau, a new variety, stands out prominently. It has, as its name implies, a smooth spindle shape, is of a light pinky colour and contains a high percentage of sugar. The common, red tubered variety can also be grown, but less conveniently. The cultivation of this vegetable is easy. Tubers planted in March in any soil give a bountiful crop the following autumn. Like the Chinese artichokes, the tubers must be lifted only as they are wanted, for they do not keep long out of the ground.



SCORZONERA, A MOST USEFUL WINTER VEGETABLE.

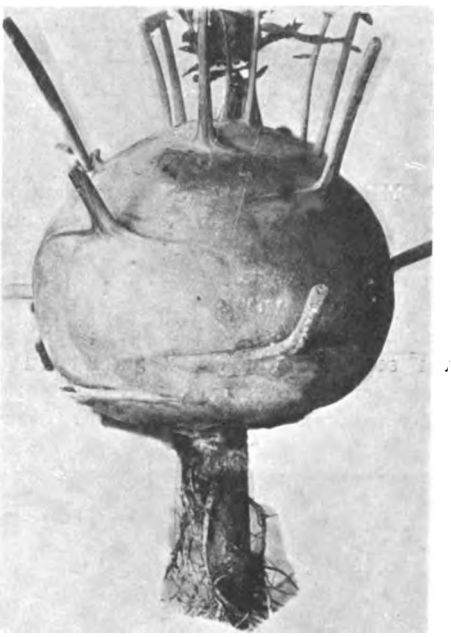
TURNIP-ROOTED CHERVIL.—A fine vegetable, rarely found in gardens nowadays; this is a great pity. The plant produces a small, white, fleshy root, similar to a small carrot, of a very refined taste and always much appreciated by the connoisseur. A very important point about this vegetable is to sow the seed in the autumn, or store the seeds in sand all the winter.

COMMON CORN SALAD.—Of very easy culture, this hardy vegetable ought to be far more grown than it is. It is certainly one of the best winter salads, and is in season from September till March. The plant forms small rosettes of vivid green or, in some varieties, light green foliage that can be eaten in the same way as every salad. Often grown as a catch crop, corn salad is sown broadcast in August after the ground has been cleared of other crops, such as onions, French beans, etc. Little trouble need be taken, the ground being just hoed superficially and then raked over for covering the seeds. For harvesting, the whole plant is simply cut with a knife.

ENDIVE.—Two kinds of endive are cultivated, one with finely lacinated foliage and the other with almost entire and serrated foliage. Endive is invaluable as a winter salad. Owing to their rather hard texture, they are bleached before consuming except, of course, when intended for cooking. Sowing takes place in July and beginning of August, and the plants, if grown in good soil, are ready to eat from October till January and February. If they are to be eaten during the early winter months, a good way to protect the plants against cold and to bleach the leaves, is to cover the beds with dry leaves and straw. It is best to transplant them to a cellar or cold frame if they are not required till the spring.

KOHL RABI.—Commonly cultivated as a forage crop, there are several varieties of kohl rabi that are useful for culinary purposes, when eaten in a young state. Unlike turnips, swedes, etc., the edible part in this plant is not the root, but the stem that becomes fleshy and spherical above ground. Probably the best variety to cultivate is Early White Short Leaved, a kind that grows quickly and is always tender. If intended for winter use kohl rabi is best sown late in the season, that is in June or first weeks of July. It has a taste half cabbage and half turnip and can be cooked in the same way as either of these vegetables.

SUGAR (or MANGE-TOUT) PEAS.—In this class of peas, pods and seeds are eaten together, owing to the absence of



THE BULBOUS STEM OF KOHL RABI SHOULD BE EATEN IN A YOUNG STATE.

fibres in the pods. These peas are exceedingly good and one wonders why they are not more commonly cultivated in England. A reason may be that the birds are very fond of them, but nets are a safe remedy. Quite a number of varieties, dwarfs and climbers, exist, among which one of the best is probably Tall White Flowering Scimitar, or Crooked Sugar, a climber. Sowing takes place, as in ordinary peas, from February-March till June and July, in good, rich, open ground.

SWEET POTATO.—Mention may be made of this curious vegetable, which is very common in the tropics, but rather difficult to grow in our northern climate. Gardeners who have greenhouses can nevertheless attempt it. Young plants are planted on an old hot bed in May or June when frosts are no longer to be feared. Plenty of room must be given them. The large, coloured tubers are ready in October. These tubers keep badly and must be used in a comparatively short time. The best way of propagation is to take cuttings every year from tubers wintered in a very dry corner of a hot greenhouse, or to root them in July and August and winter them also in a hot house.

SALSAFY and SCORZONERA.—These two vegetables are much alike, except that the first has white and the second black roots. Both are much appreciated by the epicure. The cultivation of these vegetables is easy. Seeds, which one must get from a reliable source (its germinating

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power lasting only one year), are sown in March in deep ground in rows 1ft. apart. They ripen during the winter, while scorzonera, which is a true perennial, will last for several years.

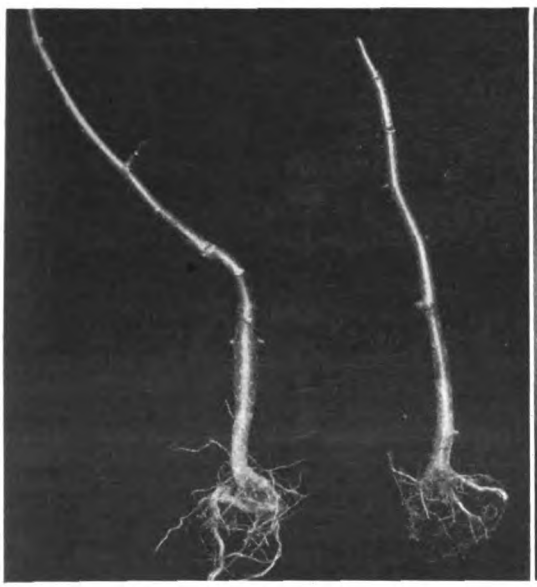
NEW ZEALAND SPINACH is essentially a sun and heat lover. It is sown at the end of May in pots in a greenhouse or in a frame and planted when large enough in the open air. An ideal place to plant it is on an old hot-bed where plenty of moisture can be given. The leaves, which can be cut all the summer, have the same flavour as ordinary spinach.

YAM (Chinese).—The old variety of Chinese yam had the great disadvantage of being too long (often 2ft. to 3ft.), and so was very difficult to lift. Of late, however, a variety, "Chappelier's Improved" has made its appearance, which can be recommended. The tubers are about 1ft. long, yellowish and in the shape of a club. The cultivation of the yam is fairly easy. After lifting, the thin top part of the tubers is retained, cut into lengths of 1½ins. or 2ins., which are put in sand in a cellar till March, when they are started into growth in a house and planted in the open during May or June in deep, rich ground. The plants can be left two or more years on the same spot without disturbance. C. L., *Paris.*

PENTAPTERYGIUM SERPENS

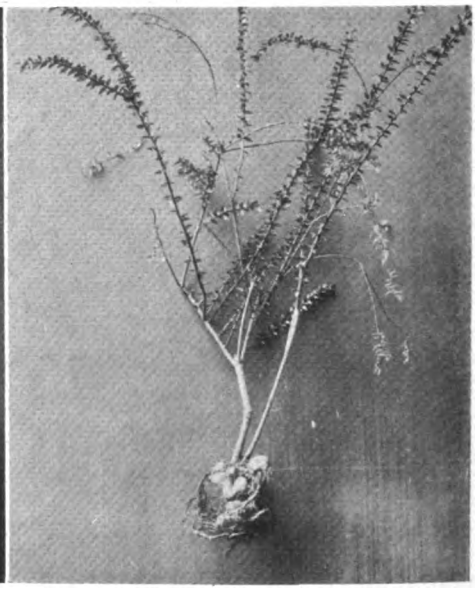
BY L. B. STEWART

SOME time ago there appeared an article in THE GARDEN (July 12th, 1924, page 489), on the fruiting of this plant by Miss M. Mitchell. The fruit, after the drawing had been made, was taken and the seeds extricated. They were thickly coated with mucilage, and after sowing were not very long in showing signs of germination. After three weeks the seedlings which had germinated began to show the characteristic swelling of the root-stock—the swelling taking place from the primary tap root. When the swelling begins to take place the seedlings commence to press this swollen portion on to the top of the soil, and from the base of this swollen portion other ground roots are formed. The small root-stock is circular in shape and uniform, but whether it will keep this uniform shape is very difficult to say at present. The object in sowing the seed, however, was to find out if it was fertile or not, as the plant is very easily propagated from stem cuttings, which is the method usually adopted in this garden. The interesting point, however, is that it is the primary tap root which gives rise to this swelling at a very early stage, whereas with the cutting it takes a considerable period before the roots begin to show this swollen root-stock, and although the swelling makes its appearance it is never so regular and uniform as it is in the seedling. The length of time taken by the cutting to produce this swelling may be due to the fact that the kind of root to be produced is not present among the first roots sent out, but is a later development. When a cutting begins to form this swelling it grows upwards in the pot. After it has attained a certain size and has grown out from the stem there is a gradual bending downwards of the point end of the swollen portion. After the swollen portion gets into position it is gradually pushed up until it is above the level of the ground. Its irregular shape may be the result of this bending. The cutting certainly never has the appearance of the seedling, and often sends out two or more of these swollen fleshy root-stocks. It is, however, quite the reverse in propagating plants which have a highly developed hypocotyl, such as is found in Sterculia rupestris.



On the left.—SEEDLING OF BURSERA SHOWING WELL DEVELOPED HYPOCOTYL. *On the right.*—STEM CUTTING.

A THREE WEEKS OLD SEEDLING OF P. SERPENS SHOWING THE REGULAR SWOLLEN ROOT-STOCK.



STEM CUTTING OF PENTAPTERYGIUM SERPENS WITH THE IRREGULARLY SWOLLEN ROOT-STOCK.

Here one finds that the hypocotyl has grown into an enormous size when the plant has been raised from seed, but should cuttings of this plant be rooted it will be found that no swelling takes place. The plant having lost its characteristic, by the absence of the swollen portion, is difficult to distinguish.

Many other plants show highly developed hypocotyls—such as Bursera—which are of high economic value, and great care has to be taken to prevent the hypocotyl from being buried. At Edinburgh they are always potted with the roots showing on the surface of the soil. When branch cuttings are rooted they can be handled with impunity, as it does not seem to be of any importance to them how they are potted, and shows the grower that he has got rid of the dangerous part of the plant. Whether or not this mode of propagating Bursera commercially would prove to be a success, has yet to be evinced, and I expect much would depend on the growth of the cutting compared with the growth of the seedling.

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SOME ROSES FOR THE WILD GARDEN

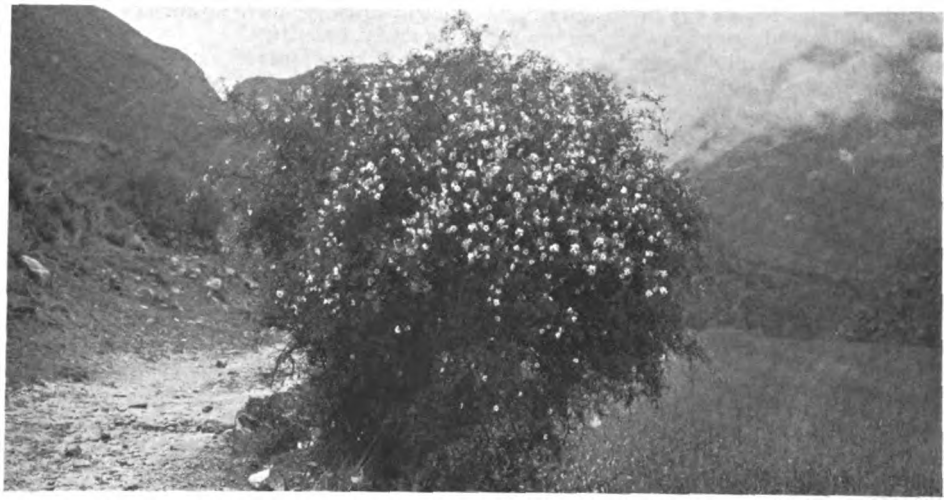
BY E. H. WILSON.

ROSA SOULIEANA.

THIS is an extremely vigorous species of musk rose, common between 6,000ft. and 10,000ft. in the warm, dry valleys of the rugged region which forms the Chino-Tibetan borderland. When isolated it forms dome-shaped, tangled masses 20ft. high and as much through, but on the edge of the forests it is more rampant. It has grey stems which, as in all its class are freely armed with hooked prickles. Its leaves are grey-green and the flowers, borne profusely in flattened round clusters, open yellowish and change to white.

The fruit is ovoid and orange red. The flowers are each about 1½ins. in diameter and the trusses from 5ins. to 6ins. through. It was discovered near Tachien-lu by Père Soulie of illustrious memory, who sent in 1896 seeds to M. Maurice de Vilmorin, with whom it first flowered in 1899.

Though native of an upland region this rose has not proved hardy in the Arnold Arboretum, though it flourishes at Kew where it has been growing for a quarter of a century. It is well adapted for the wild garden, where it can ramble at will and, untouched by the pruning knife, display the beauty of its flowers, its luxuriant foliage and attractive fruits.



ROSA SOULIEANA ON ITS NATIVE HEATH IN THE CHINO-TIBETAN BORDERLAND.

ROSA MULTIFLORA CATHAYENSIS.

With its pink blossoms and bright yellow anthers this is one of the prettiest of wild roses and, moreover, one of the most interesting. It is a common rose in China, favouring sandy and rocky places beside streams up to altitudes of 6,000ft. In habit it is variable, for the stems may be prostrate or erect. but it is best as a bush from 5ft. to 8ft. tall. On rocks it generally forms a dense mass with arching stems. The flowers are produced in erect flattened clusters, which, standing well above the foliage, garland the whole plant in pink of the purest hue.

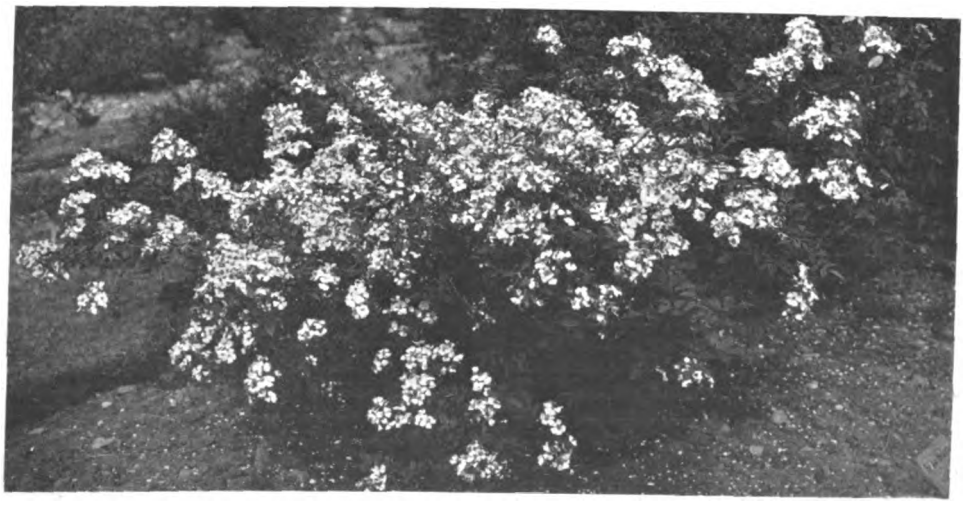
This rose is the wild parent of the Polyantha rose, the old "Seven Sisters Rose," and of the famous rose "Crimson Rambler," which have been cultivated in China probably for centuries and long before they were known in Western gardens. Of perfect hardiness, this wild form is more lovely than many of the modern rambler roses raised and grown in the West and is worthy of a place in gardens where beauty in simple flowers is appreciated.

Forms of this rose with double flowers were introduced into England as long ago as 1804, but the wilding itself was apparently quite unknown in Western gardens prior to 1907, when I sent seeds to the Arnold Arboretum.

ROSA MULTIFLORA CATHAYENSIS. A BEAUTIFUL WILD RAMBLER WITH PINK BLOSSOMS, FOUND IN SANDY AND ROCKY POSITIONS.

ROSA HELENÆ.

Of the half dozen and more musk roses of China, Rosa Helenæ has proved the hardiest of those introduced into Western gardens. It is an exceedingly



THE HARDIEST OF ALL THE MUSK ROSES WHICH HAVE BEEN INTRODUCED TO WESTERN GARDENS IS ROSA HELENÆ

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common rose in the mountains of Central China, its blossoms perfuming the countryside in June. It is a strong grower with arching canes from 6ft. to 12ft. long, plenteously armed with stout, hooked prickles. The leaves are from seven to nine foliolate, deep green above, grey-green below, sharply toothed and glabrous except on the petioles and principal nerves on the lower surface. Along the full length of stout canes short shoots are developed, each terminating in a large, rounded cluster of pure white, delightfully fragrant flowers, which are followed by orange to red, ovoid to obovoid hips. The individual flowers are about 1½ins. across with a cluster of conspicuous yellow stamens and are singularly beautiful.

In rocky places from river level to elevation of 5,000ft. this rose is abundant in Western Hupeh and Eastern Szechuan, but it has not yet been reported from farther west. In wayside thickets and on the banks of streams it forms dense masses often 20ft. high and as much through, and on the margins of woods it entangles and drapes small trees. At the Arnold Arboretum it is quite hardy, withstanding as much as 45° F. of frost. On limestone soil at Rochester, New York, it thrives even better than around Boston, Mass. The author's appreciation of the musk rose may be gauged from the fact that it is named after his wife.

THE FIG

THE fig, one of the most delicious of all fruits, is often overlooked and not grown, yet it is quite certain that no choice or dainty sweetmeat excels a White Ischia fig when, growing in a sunny position, it is bursting with ripeness.

The fig may be a somewhat unappreciated fruit because an imported green fig, picked unripe, as it must be, bears no comparison in flavour with the home-grown fruit picked ripe.

Again, the cultivation, in no way difficult, is different from other fruits. It is more fruitful on poor soils than on rich, yet when carrying its fruit pays for feeding with liquid manure.

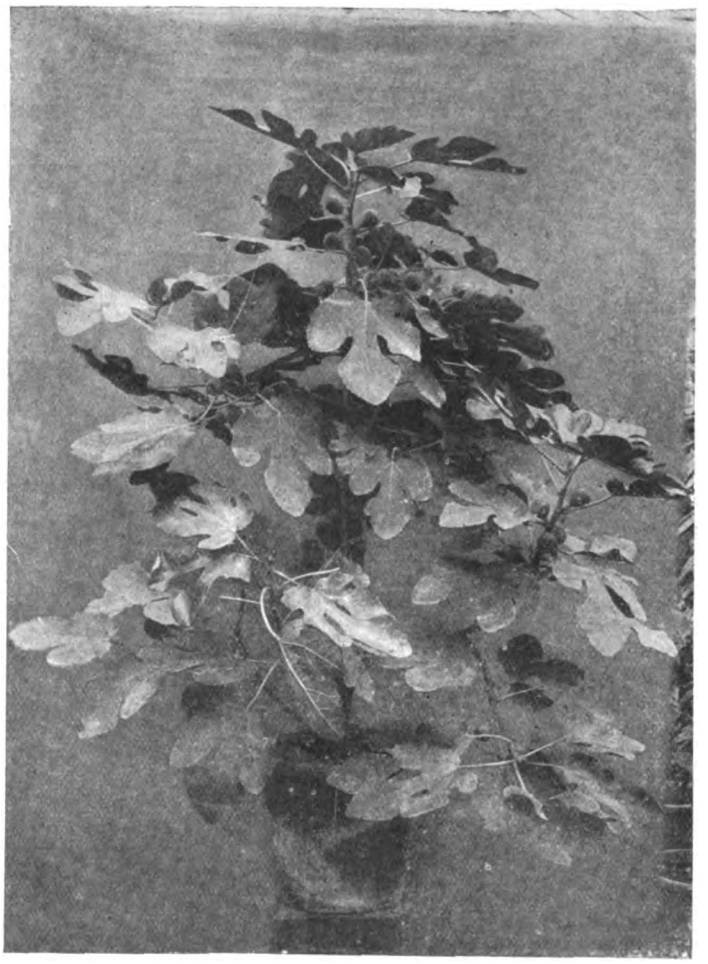
Under glass, if forced, the fig may produce three crops of fruit a year, while two crops (one coming on the previous season's wood and one on young wood) may be expected on trees in an unheated house if grown against a hot wall.

Outside, the fig succeeds well on a south or west wall for preference, as it is in such places where red spider would be rampant on some plants, that the fig is at home. Without the reflected heat of a wall the successful crop of fruit is less certain, but quite possible in some districts. Most important details outside are restriction of the roots and selection of varieties.

In the open, and especially in rich or deep soils, the roots should be confined to a restricted area, or the trees produce an excess of fruitless growths; a brick or concrete floor 2ft. down will secure the tree against a downward tendency of the roots, which should afterwards be pruned if the tree develops too grossly.

Visitors to the East Coast town of Deal may obtain a good lesson in fig-growing in the moat in Deal Castle, against the walls in shallow soil. The fig likes a soil in which lime is present and mortar rubble or chalk are valuable ingredients of the soil. Grown in this suitable but poor soil, liquid manure produces immediate results if applied when fruits are swelling. Brown Turkey and Brunswick are the two recognised varieties for outside, but others will do in a warm position.

Under glass, when grown in pots, the cultivation of the fig is quite easy.



THE FIG MAKES AN EXCELLENT POT PLANT.

If planted in a border it is essential to restrict the roots, while at the same time to see that there is ample drainage, for a water-logged soil will not do. For the same reason, when in pots the compost should be open, the loam lumpy and unscreened, in proportions of two-thirds of the latter to one-third sand, manure (rotted), mortar rubble or chalk in equal proportions, and some bone-meal or hoof and horn is a good addition, at the rate of a 7in. potful to the barrow-load. Pots should be double crocked, or, better still, have a layer of ½in. bones to ensure good drainage.

An additional interest may be found in the fig, which is the first tree mentioned in the oldest book and history of the world; but to the modern and materialistic mind its luscious flavour and ease of cultivation should be an attraction. It is quite a popular fallacy that the appreciation of the green fig is an "acquired taste," and I have never met the individual who did not admit to this after tasting a fully ripe White Ischia. It was the late Mr. George Bunyard, a fine judge of quality and flavour, and the greatest connoisseur of good fruits in his day, who first pointed this out to me.

The different varieties are worth a little study, for most of them have their good points. My selection of the best would be as follows, placed somewhat in their order of general merit:

BROWN TURKEY, the most easily grown inside or out. Large, with brown skin and red flesh, very luscious.

WHITE ISCHIA, small, but very sweet. Skin and flesh pale yellow. Very free bearing.

BLACK ISCHIA, somewhat similar to the latter, but larger, with deep red flesh.

NEGRO LARGO, the largest fig grown, with the finest appearance, but not so fruitful as others. Skin black, flesh pale green, tender and juicy.

BRUNSWICK, good for inside or out. Forces well. The large fruits are brown, with purple flesh of high flavour.

BOURJASSOTTE GRISE, fruit of good size, with blood red flesh, juice thick and syrupy. One of the best.

VIOLETTE SEPOR, large fruits, skin brownish purple, flesh deep red. Excellent flavour.

WHITE MARSEILLES, one of the best early varieties to force. Skin pale green, flesh opaline.

OSBORNE'S PROLIFIC, an excellent variety for early work and forcing. Skin brown, flesh white, good quality.

Growing any fruit is a fascinating hobby and a profitable occupation; the cultivation of figs is not the least absorbing, as those who have a greenhouse or a warm corner outside will prove if they give them a trial. L. J. COOK.

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WINTER SPRAYING

LAST season was remarkable for its exceptional freedom from plagues of aphides, or "blight," as the countryman calls the whole tribe of green fly and its relatives, but what we gained by the absence of these pests was to a great extent lost through the vigorous offensives of hosts of caterpillars. The various mites, maggots and grubs that infest apples and pears, and a whole catalogue of parasitic fungoid diseases of large and small fruits, roses, and some ornamental trees, have made a merry time of it at the expense of orchard and garden owners, and the truth of the matter is that the need for spraying is urgent.

The old familiar admonition in regard to the necessity for spraying before the enemies gain a foothold, and the folly of waiting until serious damage has been done must, when one comes to think of it, have fallen on many deaf ears. That is the great handicap to progress, but it is very difficult to induce anyone to spend money, time and labour upon the task of fighting an unseen foe. Let one see his plum trees, and the young growths of apple trees or of roses smothered with green fly and away he will go for "Abol" or V. 2 Fluid, or nicotine wash and give the pests an uncomfortable half hour, but talk about green fly in the wintertime when the trees are bare, and it is like trying to interest him in a scheme for protecting Southend shrimpers against sharks. When mildew whitens the foliage of roses and vines the quest for cures begins, but how like the voice that cries in the wilderness is the plea for spraying against mildew with a copper sulphate spray, or with lime, sulphur and salt, while growth is dormant; and yet, careful and practical tests have proved that even the more susceptible roses and vines in houses which have to accommodate other kinds of plants can be kept clean and healthy by the winter use of one of these sprays.

The preparation of such spray fluids is quite a reasonable undertaking for extensive commercial establishments where many acres of fruit trees or roses have to be dealt with, but for private gardens it is cheap—probably cheaper—and certainly less messy and troublesome, to purchase one of the ready-made pastes or compounds which are put up in convenient quantities with explicit instructions as to how they should be mixed with water.

The ordinary rose mildew (Sphærotheca pannosa) does not expire or migrate when, with the withering and fall of the foliage, its downy whiteness disappears, but it perfects its minute fruits, which under a powerful microscope have somewhat the appearance of half-formed blackberries with radiating hair-like filaments around the base, by which they attach themselves to stems, thorns, or to soil and stones around the base of the bush. These fruits remain dormant until spring, when they release multitudes of spores to develop their downy coating over the young growths as soon as weather conditions are favourable. Bordeaux mixture, sprayed during the dormant season, will not harm the hard wood of the bushes, but will prevent the fruits of mildew releasing their spores. Cupram is a good spray to use on vines, peaches, etc., and it is effective against peach-leaf-curl as well as mildew. Cupram is made by mixing copper carbonate with ammonia but this again is much better obtained from qualified horticultural chemists.

It is during the dormant season that the best work can be done among fruit trees which are green and slimy with lichen and algæ. It seems strange that there should still be necessity for urging the importance of cleansing the bark of fruit trees and many ornamental trees also, but basing judgment upon the number of trees allowed to retain loathsome coats of greasy slime and green mossy fungus, one is driven to the conclusion that many owners of gardens are yet ignorant of the fact that these filthy coatings are not mere disfigurements, but are injurious impediments to the natural functions of the respiratory pores of the bark. One would imagine that if the sole result were to allow access to the tree for pruning or fruit gathering without getting besmeared with slime, it would be well worth spraying with a caustic alkali wash, but when the health and productivity of the tree are also at stake no legitimate excuse for the careless neglect that is so prevalent is to be found.

Still further to urge the folly of neglect in this matter, it is a fact proven beyond contention that the eggs of the most destructive of insect pests lie secreted and snug among the lichen of tree trunks, and by the destruction of the lichen the safe harbour for a myriad of pests is routed, and thus the caustic winter wash performs a triple service. Strawsons, Coopers, Abol and a number of other familiar names among horticultural chemists occur to mind as providers of excellent caustic winter washes, the basis of which is caustic soda. Needless to say the use of such preparations is work for intelligent men who, realising the nature of the compound they are using will exercise due caution that the spray is driven on to the trees to be treated and not over the faces and clothes of passers by. The operator will also be well advised to smear his face and hands with vaseline, and to take care to keep himself to the leeward side of the spray throughout the operation. A still day, rather than a windy one should be chosen for the work, and it is very essential that the machine should be thoroughly washed inside and out as soon as spraying ceases.

It is utterly inadequate and hopeless to rely upon one spraying, however thoroughly it may be performed, completely to restore to health old trees that have fallen victims to a variety of pests and diseases. Bear in mind that one pest or one disease opens up the way for another. Aphides weaken growth, and throw the shoots open to various fungi. American blight makes sores in the bark which let in canker, and so one might go on through a lengthy list of foes which dovetail, support and follow up each other's operations like the units of a mighty army intent upon vanquishing the victims of their force.

The caustic wash clears the way for effective application of Bordeaux mixture, and it is well to mention that even canker yields to persistent effort with this copper and lime spray, which may, however, have to be used in stubborn cases for two or three successive years.

Lime-sulphur may, with advantage, be used a little later in the season, because not only will it prevent the hatching out of the first batches of aphides, but, applied in February, when the birds are prone to amuse themselves pecking out the fruit buds, lime-sulphur makes the buds unpalatable, and feathered marauders prefer to go elsewhere.

The firm of Lewis Berger has paid great attention to the preparation of a first-class lime-sulphur spray, and simple as it may appear, to read a formula for the making of such a spray and carry out the instructions, the best results can only be obtained by the most careful attention to the purity and relative strength of the ingredients to ensure an absolutely accurate balance.

Gooseberries, currants, loganberries and blackberries may all, with advantage, be sprayed with lime-sulphur as well as the tree fruits.

Many times I have urged that where a garden is surrounded by hedges of thorn, myrobalan, dog briar, etc., or where trees which harbour pests and diseases are within easy distance of the garden or orchard, it is well worth while when the job is afoot to douch these likely hosts or purveyors of the foes that are to be fought. There is no extravagance in using a gallon or two of wash and an hour or two of time to extinguish possible relays of the enemy, but there will be a good deal of labour in vain if this is neglected.

As spring advances, other pests need other poisons. Nicotine becomes extremely valuable when biting insects become active. Whenever nicotine is mentioned the name of G. H. Richards, Borough High Street, S.E., is called to mind, for his nicotine preparations must have a marvellous record of slaughter among the foes of the garden. XL All is an invaluable symbol of efficiency in insecticides, not only the tree wash, but the fumigating compound, which is a boon where glasshouses are concerned.

I have for years made a practice of adding a few drops of XL All Fumigating compound to all my ordinary soft soap-quassia sprays, and the effect of such reinforcement is very remarkable. If I were obliged to restrict myself to one insecticide, nicotine would be my choice. Psylla, and the terribly destructive capsid bug require this narcotic poison; and in spring, too, the use of arsenate of lead must be considered, especially if from any cause the trees were not effectively grease-banded to trap the wily wingless winter moths.

Rather than dismay the reader with a prolonged spraying programme for the

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whole season, however, let it suffice for the present to reiterate the wisdom of concentration for a time upon caustic soda, copper and lime-sulphur in that order of rotation.

Owners of small gardens are somewhat handicapped because, while they can procure serviceable spray fluids in small quantity, they cannot obtain a spraying machine which just suffices for their small needs, and do not feel justified in paying the price of a good knapsack. To such an "Abol" syringe is a real treasure. It will discharge as fine a spray as a machine at treble its cost, and it is, moreover, an implement for which there are useful and necessary tasks during the greater part of the year. In fact, no garden is too small to require a syringe, and no garden requires a better one than an "Abol." The excellent insecticides bearing the same name are also praiseworthy, being safe and efficient during the whole active season of all kinds of biting and sucking insects. Owners of greenhouses will even now find work for "Abol" insecticide; its outdoor use will commence with the appearance of young spring foliage. A. J. MACSELF.

CORRESPONDENCE

FLOWERS IN A CORNISH GARDEN IN DECEMBER.

SIR,—Readers of THE GARDEN may be interested to see the enclosed list of one hundred and eleven flowers in bloom out of doors in my garden, December 31, 1924.—CORNISH GARDEN.

Cyclamen coum
C. europæum
Viburnum lucidum
V. Tinus
V. rotundifolium
Olearia Forsteri
O. F. grandiflora
O. stellulata
O. Gunniana
Choisya ternata
Raphiolepis ovata
Diosma gracilis
Pernettya mucronata
Acacia Baileyana
A. ovata
A. retinoides
Osmanthus ilicifolius
Banksia buxifolia
Abelia chinensis
Abutilon
Veronica (3 varieties)
Aponogeton
Aralia Sieboldii
Grevillea rosmarinifolia
G. sulphurea
G. Preissei
Escallonia rubra
E. exoniensis
Erica carnea rosea
E. codonodes
E. arborea
E. Veitchii
Hypericum patulum Henryii
H. calycinum
Hamamelis mollis
Calceolaria Burbidgei
Hellebore
Genista
Diplacus glutinosus
Solanum jasminoides
Sollya Drummondi
Habrothamnus fasciculatus
Jasminum nudiflorum
Kerria japonica
Coronilla
Clianthus puniceus alba
Hydrangea (blue)
H. Menziesii
H. quercifolia
Primula helodoxa
Arbutus
Senecio
Magnolia grandiflora
Rhododendron Nobleanum
R. N. venusta
R. arboreum seedling
R. Shirleyi
R. Strategist
Eupatorium
Ceanothus Gloire de Versailles
Correa cardinalis
C. corymbosa
Garrya elliptica
Fuchsia speciosa
F. fulgens
F. spectabilis
Brugmansia lutea
B. bicolor
Berberis Darwinii
B. nepalensis
Cytisus præcox
C. proliferus
Cistus purpureus
Azalea amœna
Hibbertia
Cassia corymbosa
Dendromecon rigidum
Primula Fosteri
Mesembryanthemum
Violet, double
Violet, single
Primrose
Crocus (blue)
Geranium (4 varieties)
Polyanthus
Aubrietia
Iris stylosa
Stock, double
Stock, single
Wallflower
Rock Cress
Geum Mrs. Bradshaw
Forget-me-not
Alyssum
Chrysanthemum (4 varieties)
Marguerite
Rose Eugene Resal
R. Ards Rover
R. Excelsa
R. White Dorothy Perkins
Salvia (3 varieties)

[It may be interesting to our readers to compare this list with that given by another of our correspondents in the issue of January 10, 1925, page 25, from West Porlock, Somerset. It also serves as a useful indication of the climatic conditions which prevail in the south-west corner of England.—ED.]

A FINE BROMELIAD.

SIR,—I enclose a photograph taken on December 20th, 1924, which may interest your readers. The plant is, I believe, Rhodostachys andina (Chili). The inflorescence consists of a number of flowers packed tightly together, and is of a pale blue colour. What made it more striking was that all the leaf spikes round it turned a deep crimson. The plant was given to me by Mr. R. C. McM. Smyth, and came originally, I believe, from Sir Frederick Moore. It has been in its present position in my rock garden for three years, but has never shown flower before. I believe these rhodostachys rarely flower in the open air, and it seems very extraordinary that this particular plant should have chosen December for the purpose! I should be glad to hear if any of your readers have had a similar experience.—ALAN MCMULLEN, *Kingstown, Co. Dublin.*

RHODOSTACHYS ANDINA IN FLOWER OUT OF DOORS.

A FLOWERING ALOE.

SIR,—With reference to Mr. William Clark's note in the Correspondence columns of THE GARDEN of November 29th, 1924, page 811, and his question as to whether the aloe figured will die after flowering, I may say that I never knew an old plant to survive after flowering, but plenty of smaller plants will probably spring up around the old plant—at least, that is my experience, having lived for thirty-three years in Latitude 34, Southern Hemisphere, where these plants are like weeds.—VERE CALDWELL.

VEGETABLE SEEDS FOR A SMALL SUBURBAN GARDEN.

SIR,—If the writer who signs himself George Garner under "Simple Gardening" is the same as we have known and learnt from in past years, he will, I know, allow me to criticise his sowing table page 13.

Would he really advise the owner of such a garden to sow a drill 100ft. long with an ounce of Globe artichoke seed? The plants grow rapidly and would by autumn cover a space 6ft. wide = 600 sq. ft.! Again, I have on several occasions sown packets of this plant from noted seed houses, but found the seedlings very variable, only about 10 per cent. being of good quality.

Broccoli is to be grown and ½oz. of seed is allowed. Probably this would produce 1,000 plants and more, but they would all be of one variety! Even a small garden would require three varieties—early, mid-season and late—to say nothing of early purple sprouting, one of the best winter vegetables for a small garden.

Celery seed is very minute and ½oz. would be sufficient for a very large garden, whereas the smallest packet would suffice for the garden named. The same might be said of the 1oz. of leek seed recommended.

If a pint of dwarf bean seed is necessary (800 average sized seed go to the pint), the allowance of two pints of peas can only be regarded as very scanty, especially as no fewer than 6,000 head of the cabbage tribe are arranged for.—J. COMBER.

CROCUS IRIDIFLORUS.

SIR,—There are some most exquisite flowers among the true autumn-flowering crocuses, and, for those who appreciate the quiet, yet bright beauty of the charming cups of the crocus in the waning days, they present much to give them delight. I hardly know one of the species which is not of high beauty, yet, of course, there are some with paramount claims upon our affections. Such is Crocus iridiflorus, one of the most exquisite of all crocuses, though inferior in size to C. speciosus and the spring-flowering varieties of C. vernus. It is of unique form among the crocuses, the difference in the size of the inner and outer segments giving it something of the appearance of an iris, hence the name of iridiflorus, or iris-flowered. This distinction caused some botanists to confer upon it the honour of a separate genus, calling it crocoiris. But it is a true crocus, and amazingly beautiful. Its cups, of a kind of lavender, varied by the inner and outer segments being of different shades, are delightful and are enhanced in beauty by the striking coloured stigmata. It is my favourite autumn crocus, and, although more expensive than some of its allies, which also flower in autumn, is well worth the few pence a single corm will cost, and a dozen or more will not be more expensive than will be justified by the pleasure they will afford for a long succession of years. It flowers in September and following months, and is perfectly hardy. Mice are its only enemies, although a slug may take a fancy to indulge itself to the luxury of a trial of its delicate flowers. This crocus is not nearly enough known, and in sunny nooks of the rock garden or border it is exquisite. I hesitate to suggest it, but a sheet of glass above will prolong its charms for a longer period—S. ARNOTT.

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SIMPLE GARDENING

DAHLIAS.

THERE are dahlias to be obtained now that will suit every garden, whether used in beds for furnishing the garden with masses of flowers, in shrubberies or for exhibition purposes. They include cactus, decorative, collarette, pompon and single-flowered. It is very interesting work growing dahlias from seed, and amateur cultivators may succeed well with them, especially the single-flowered section. The seeds should be sown about 1in. apart in deep pans filled with a good gritty compost during the early part of February. Of course, some artificial heat is necessary, a warm pit or greenhouse in which zonal pelargoniums are doing well will suit the dahlias. But it is with the raising of new stock from cuttings that we are mainly concerned about now. Readers of THE GARDEN who possess old roots should examine them very soon, now, during open weather, not while a frost prevails, and make due preparations for striking the first batch of cuttings. The latter may be rooted in a propagating frame in a heated house, or in an ordinary frame placed on a hot-bed. The inexperienced cultivator would do well to use the house and propagating frame for the earliest cuttings, as they are so liable to damp off on a hot-bed. First, place the old tubers in a box of soil and encourage the growth of suitable cuttings. These should be about 6ins. long, prepared similarly to a pelargonium cutting and inserted in a nice gritty compost. After the first watering be watchful against damping off. A little ventilation will help to preserve them if applied judiciously.

FORCING VINES.

Grape vines grown under glass are forced at all times between November and April; before Christmas by fire heat solely; immediately after, mainly by fire heat, the sun heat helping; and from the end of January onwards by fire heat much supplemented by that from the sun. Where sun heat alone is relied upon the vines begin to grow from four to six weeks earlier than those on outside walls. Late varieties of grapes need a longer period of growth than the early ones. To economise as regards fuel, the early varieties may be started by sun heat alone and mature the berries in due course. But the late ones, such as Muscat of Alexandria, Gros Colmar, Alicante, will require the assistance of fire heat and to be started by its aid several weeks before the date when it is safe to start the early varieties such as Black Hamburgh, Foster's Seedling, Buckland Sweetwater and Madresfield Court. The earlier the date of starting vines the more difficult the work is; the later in the spring the easier it is because the sun has greater power and the sap is rising more freely. Having pruned the vines at the right time the danger from excessive bleeding will not be great when the sap rises. Heat and moisture are essential to induce the growth of healthy young shoots. Every morning, except in frosty weather, the rods should be syringed with tepid water; the rods should be dry at sunset. A temperature of 60° Fahr. by day and 55° Fahr. at night will answer well till the young shoots are 1in. long, then 5° more will be beneficial.

THE NEW ROCKERY.

The present is a good time to do much renovation work in the rockery garden, and also to build the new rockery, whether this be small or extensive. I use the word "build": it applies in the case of a rockery as well as in that of a wall, only the work is carried out in a different way. The drawings are made with a view to helping the inexperienced. A section is shown at *a*, it is the wrong way to place the stones; the right way is shown in the section *b*, where the

stones are properly placed. The front of a rockery is shown at *c*; the plants, shown at *d*, have plenty of soil to grow in, and the stones, when placed as shown at *b*, do not prevent the rainwater entering the soil as it trickles down from stone to stone and soil. Rockery stones should be laid flat, showing the grain, and not on end, as they are placed at *a*. When a rock wall is built the stones must be correctly placed. A small, well arranged rockery is more pleasing than a large one badly arranged. The following plants will be sufficient for a small rockery to begin with. To bloom in spring: Alyssum saxatile compactum, antennaria, arabis, aubrietia, dianthus (alpine pinks), gentiana, irises (dwarf), phlox (dwarf), primulas, saxifrages. To bloom in summer: achilleas, Arenaria balearica, asters (alpine), campanula (dwarf), dianthus, primulas, Saxifraga longifolia, sedums, sempervivums, silene, veronica, auriculas (alpine), cyclamen. Cerastium tomentosum should not be used; in many cases it soon overruns the rockery and is difficult to eradicate.

POTTING CHRYSANTHEMUMS.

The first batch of cuttings, inserted early in December, will now possess a few roots and soon be in a fit condition to be potted. When the roots reach the sides of the small pots they are well advanced in the case of cuttings inserted singly in the centre of the soil in small pots. Those inserted round the sides of larger pots will need repotting or potting singly where one plant to a pot is the rule. This shift should take place directly the young roots are about ½in. in length. If the cuttings are allowed to remain in the cutting pots until the roots are entwined together the check will be much greater than would be the case if the potting was done much sooner; and checks to growth should be avoided as much as possible.

Having decided to remove the rooted cuttings from the propagating frame, place them forthwith in another one or in a box where they can be very freely ventilated for several days prior to their removal to a high shelf or stage in the greenhouse. Very careful watering will be necessary, a light spraying being sufficient in most cases for the few days the young plants remain on the shelf before they are potted. The compost should be a simple one, fibrous loam two-thirds, leaf-soil one-third, with a good sprinkling of coarse sand or old mortar rubble added. Pass all through ½in. mesh sieve; use clean pots and crocks and return the newly potted plants to the shelf.

BIG LEEKS AND ONIONS.

The cultivator of vegetables is generally enthusiastic about all details connected with the growing of big leeks and onions. Even the experienced cultivator takes heed of hints regarding management. Indeed, it is this alertness that enables a cultivator to grow the large specimens we often see at the exhibitions. I am not dealing with the merits or demerits of such specimens here, but simply their treatment. After very many years' experience I find it is much better to sow the seeds late in January rather than early. The seedlings raised early rarely grow as freely as those raised, say, three weeks later. Many plants that suffer a check owing to early sowing of seeds, run to seed, "bolt," and are worthless. Sow the seeds in boxes about 4ins. deep. Place a very thin layer of well rotted manure in the bottom of the box, then the compost—fibrous loam two-thirds, old mortar rubble and leaf-soil combined one-third. Pass these ingredients through a ½in. mesh sieve; the reason for this is that when the resultant seedlings are transplanted the soil falls away from the roots without breaking them—a very important point. Do not use any of the fibrous portion in the bottom of the box for the same reason. Sow the seeds thinly on a watered level surface and cover them lightly.

GEORGE GARNER.

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BOOK REVIEW

AT the present rate of development of our knowledge in all scientific subjects—leading to an ever increasing specialisation, with the consequent formation of many new branches in each study—it becomes increasingly important that the elementary student when he commences to dip into the realms and mysteries of science, whatever his branch may be, should be furnished with as broad an outlook as possible, embracing all the main points of all these separate threads, yet showing as far as possible the correlation which exists between them all. At the present day the relationship between these branches of a subject is apt to be lost sight of. They become as islands on a wide expanse of ocean, and consequently the beginner, unless he be of a critical and observant nature, is altogether misled as to the confines of his subject. Elementary text books these days are hence not judged according to the material they contain, but rather by the manner in which the subject matter is presented, so that the elementary student may find a sufficiency of pegs on which to hang his facts, and also that those pegs may be adjusted to fit their allotted holes. Everyone, before he can become a specialist, must have a firm and secure basis or groundwork on which to build his specialised knowledge, otherwise his specialisation, through the lacking of the fundamental and basic laws which govern all scientific theories, may probably crumble like the house which was built upon the sand. These notes are applicable to botanical study especially, and arise out of the volume which we have under review, "A Text Book of General Botany," by the Botanical Staff of the University of Wisconsin (Macmillan Company, New York, 16s. net). The book is the result of the experience of the authors in the teaching of elementary botany in that University in the first year courses, and as such appears to be most comprehensive for such a short period as three terms. Throughout its pages, however, there is a sustaining interest, since the authors have attempted, more or less successfully, to present the subject as an unbroken whole, while at the same time indicating how the various side-lines hold and offer untold opportunities for the workers in that particular direction. The intimate correlation which exists between form and function and which is so necessary for the elementary mind to grasp is not lost sight of. It is pointed out in many different aspects. The general treatment of the subject, if followed as outlined in the chapters is a good one, as it serves to present these many isolated facts as links in a continuous evolutionary chain or sequence of events. Starting from the simple cell of which the structure and functions are well discussed, the authors work through the main parts of the plants. A few chapters on elementary physiology follow, after which the reader commences at the lowest rung in the ladder of plant life, namely, the algæ and fungi, and is conducted through these to the mosses and liverworts, from thence to the ferns, gymnosperms and on to our present-day flowering plants, the angiosperms. These groups are illustrated by means of selected types, which method, although attended with many evils, has, of necessity, to be followed by all teachers of such a wide subject in an elementary classroom. The chapter on the classification and families of the flowering plants is, in our opinion, perhaps too brief; more space might have been devoted to it and less to the chapters on the lower groups, as, after all, these are subservient to the typical flowering plants in such a text book, where the student first and foremost should become thoroughly acquainted with the flowering plants as far as lies in his power after a year's study. Several chapters towards the end are of general interest, notably two on Inheritance, Variation and Evolution, where all the known fundamental facts are clearly and concisely expressed for the benefit of the beginner. A useful concluding chapter serves to present to the reader the economic importance and significance of plants in the general scheme of things. It is copiously illustrated throughout by means of line (*camera lucida*) drawings and half-tone blocks. A few English terms such as "microsporangium" are Americanised into "microsporange," but such is of no importance unless it is that it is unfortunate that the nomenclature and terms which have already seen adequate service and have now come to be universally employed should be cast aside. There is nothing that is new to the botanist in its pages, but to the American student it will prove its worth as a useful text book, while to the teacher it will come as an accurate and clear presentation of the subject.

G. C. T.

CATALOGUES RECEIVED.

MESSRS. FISHER, SON AND SIBRAY'S Gardening Manual for this year has reached our hands, and it is evident that the high standard of excellence which this firm has attained in the Midlands and throughout the country in general will be maintained during the year. Those who have had dealings with the firm will be well aware of the high quality of the seeds, and while that is maintained at its former level, an unlimited choice and variety is given to the intending buyer of vegetable and flower seeds. The firm has a long and well established reputation behind it, and we have no hesitation in recommending it to our readers. The address is The Royal Nurseries, Handsworth, Sheffield.

An extremely useful list of flower and vegetable seeds is presented by Messrs. William Cutbush and Son, Limited, Barnet, Herts. To our readers in the South this firm will be well known by its presence at the majority of the Royal Horticultural Society's shows. The amateur will find the catalogue of great service, as it recommends certain collections of flower seeds and also vegetable seeds, and those who do not wish to have the difficulty of choosing their own sorts thus find it solved for them. The varieties are chosen on a most liberal scale.

Another useful list of vegetable and flower seeds and a reliable guide to the best varieties for 1925 is that published by Robert Sydenham, Limited, Tenby Street, Birmingham. It is a handy size, and packed with information. We strongly recommend it to all amateurs who wish to have a good show in the gardens during the coming summer.

POLYANTHUS

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REGINALD C. GRAVES,
Clerk and Solicitor of the Council.

Town Hall, Tottenham, N.15.
5th January, 1925.

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MOISTURE AND PLANTING

SO much has been said, either aloud or under the breath, about the past season that there is little use recapitulating all its eccentricities. In some ways, however, it has been a most remarkable season. The actual rainfall in a few parts of the country has not been so large in bulk as in 1923, and throughout the country it has been patchy, but whatever the rain gauge may say, there is no doubt that the universal complaint is that it was the wettest rain that has ever fallen. This is, of course, caused in great measure by the number of days on which rain fell, but there is a further reason in many areas, and that is that the subsoil is not suited to carry off so much water in two consecutive wet years. Probably many old drains, which may have been hidden for years and yet have worked efficiently, have become choked and so helped to make the ground even more water logged.

It is to be hoped that some time during the next two months we may have sufficient hard weather to break up the surface, and it is advisable at present to dig and trench every available piece of ground so that as much of the surface may be exposed to the air as possible. In many gardens, where the soil is clay or heavy loam, the surface is so puddled that a thorough loosening of the soil is imperative, otherwise another wet year might do irreparable damage. Another season such as 1923 and 1924 coming on top of a water-logged surface would make aeration impossible, while the surface would be baked like a brick if a drought came with hot sunshine and drying winds. It is natural that gardens with a heavy soil and subsoil have suffered the most, while those with a light surface and gravel subsoil have actually benefited by the damp seasons of 1923 and 1924.

The plants which have undoubtedly been helped by successive rainy days are trees and shrubs; they have never had such a time in their lives. But even they can have too much of a good thing and in some cases, usually in heavy soil, they are flagging and appear thoroughly unhappy; the reason for this is that the soil in the hole was tramped in before the plant was planted, with the result that a basin was formed from which the water could not escape, with accompanying stagnation to the plant. If the plant is too big to be conveniently lifted and replanted after breaking up the soil, the remedy is to shove a crowbar deep into the ground so as to break the basin and allow drainage; this may be slow owing to the sodden condition of the ground, but is better than nothing.

It is a curious fact that many people who may be excellent gardeners often have two bad habits: one, as I say, is tramping in the earth in a hole made for planting; the other is of planting too deep. Too shallow planting is infinitely less obnoxious to almost all trees and shrubs than the opposite. A plant raises a stem in order that it may be exposed to the air and the elements and even if a small portion of this stem be covered it may disarrange its interior economy with the result that the plant shows its displeasure. There have been numerous cases of disease attacking a plant solely because it has been covered by soil above the collar. I cannot impress the error of too deep planting too strongly upon my readers, whether it be in fruit trees, ornamental trees, conifers, or shrubs. Naturally there are a few exceptions, as in the case of willows, but they only prove the rule.

It is also a mistake to plant when the ground is too moist, for the necessary tramping in of the soil around the plant puddles the earth and turns it into an impenetrable mass. In any case it should be seen that roots are carefully spread out in something approaching their original position. If the original soil was clay or heavy loam and sticks to the roots, as much of this should be removed as possible, of course taking care not to damage the roots, for travelling or transplanting has probably hardened the soil, so that it has formed a cake around the roots, which are unable to function properly and make their way through the hard mass.

Planting is a serious business, if your plants are to thrive from the moment they are planted, and in wet seasons a difficult one. It is not merely a question of digging a hole and shoving in the plant. Soil and general conditions must be examined with a critical eye. Successful planting requires thought and patience, but this is not done in vain.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

SUCCESS WITH SWEET PEAS, by C. W. J. Unwin.

THE RAISING OF BEDDING PLANTS.

WINTER WORK AND PLANTING, by Edwin Beckett.

HARDY FERNS FOR TOWN GARDENS, by A. J. Macself.

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GLOXINIAS

THERE ARE FEW FLOWERS WHICH POSSESS SUCH BRILLIANT COLOURING AS THE GLOXINIA. AS THE AUTHOR POINTS OUT IT SHARES THIS WITH THE BEGONIA. THESE TWO GENERA HAVE THE PECULIARITY THAT THEIR COLOURS ARE NEVER SO STARTLING AS TO CLASH WITH OTHER FLOWERS IN THE GREENHOUSE.

HAD one to name the most brilliant flower of the indoor garden, the voting would probably be fairly even between the gloxinia and the begonia. It is the former, however, that really deserves the highest place, not because of its superiority, but because of its wider range. Grand as the begonia is we have but to think of those gorgeously rich velvety blues and purples; those vivid scarlets and crimsons, running into shades so deep as to be nearly black; those wonderful sunset pinks and mauves that are so prominent among the gloxinias—to realise that they are indeed the regal queens of the greenhouse.

Considering their marvellous wealth of beauty and variety, few plants are easier to grow, and this is especially true of that aspect with which we are concerned to-day—raising from seed. Not only is this a simple matter, but he who sows now is sure of an early reward, for, about six months from the date of sowing, good plants, well furnished with bloom, result. Another splendid feature is the high quality of the flowers, for one finds very few that need be discarded as not up to standard.

One matter is absolutely essential to success, and that is a steady and sufficient temperature—60° to 70° being the minimum under which culture is possible. The seeds are very small, and thus precautions have to be taken to prevent their becoming too deeply covered by soil both before and during the process of germination. Prepare a clean seed pan by well crocking, first with one large crock over the drainage hole and then a layer of smaller pieces over this. Drainage is of prime importance, and particular care should be given to this point. A compost, consisting mainly of fibrous loam with a very moderate amount of leaf-mould and peat, should be thoroughly mixed together, with sufficient coarse sand to make the whole feel gritty. This should be sifted so as to divide it into two heaps. Place a thick layer of the coarser part over the drainage and then surface to within ½in. of the rim with the finest earth. Make this level and press moderately firm, then water lightly with a fine-rosed can and set aside for an hour to drain before sowing. The seed is more evenly distributed by mixing with an equal bulk of the finest sand, and the importance of even and thin distribution is only recognised when the time comes to prick off the young seedlings. No covering of soil of any kind should be attempted; simply sprinkle the seeds and sand on the surface and then cover the pan with a sheet of brown paper and a pane of glass.

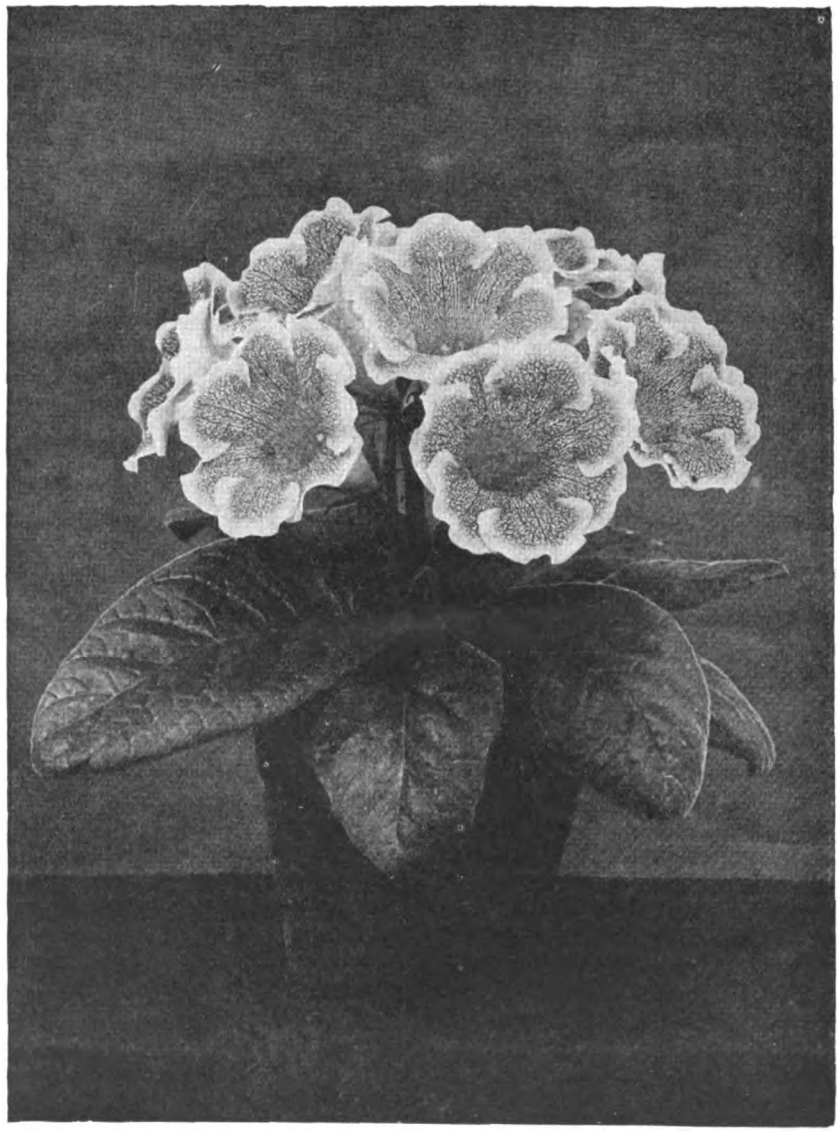

Photo. Blackmore & Langdon.

GIANT BLOOMS OF GLOXINIAS. THESE ARE ORDINARY PLANTS AND ARE NOT RAISED FOR EXHIBITION PURPOSES.

Stand this pan in a steady temperature of 65° to 75° and see that the soil is kept evenly damp without being swamped. It is most important that the soil should never become dry, for the tiny seeds produce equally tiny plantlets, and these, if dry, even for an hour, will be shrivelled up. Of course, it is impracticable to apply water in the usual way, and the best method is partly to immerse the pan in tepid water until this has made its way upwards through the soil to the surface and so thoroughly moisten the whole. Keep the brown paper and glass over the pan until the seeds have germinated, then dispense with the paper so as to admit light. Care must be taken that bright sunlight does not shine directly upon them; but, bar this, full light is a great asset in obtaining healthy seedlings. A steady temperature, regular waterings with tepid water and the admission of air by gradually withdrawing the pane of glass encourage good growth.

It is better not to disturb the small plantlets until they have attained some size; but if, here and there, a few seeds have been dropped too thickly, lift them on the point of a sharpened stick and transplant to further pans, rather than allow them to crowd each other. Before any of the leaves touch each other, deal with the whole batch in the same way, carefully lifting the plants with as little damage to the roots as possible, and transfer them to other pans, where the leaves

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will have more space for expansion. For a few days after this removal, the plants should be kept rather close so that they will not suffer a check. As soon as they begin to grow again, however, expose to the ordinary atmosphere of the house, but watch that the temperature does not fall below that previously advised. When the plants have again made sufficient progress and the leaves nearly touch, they are ready for small pots. This time, the young plants will be quite easy to handle, and no difficulty will be experienced in lifting them with a good ball of soil round the roots. Similar soil to that advised above should be used, save that it need not be sifted, although the leaf-soil should be well broken up and the peat well pulled apart. Place the soil inside the house where the plants are growing, two or three days before it is required for use, and see that it is pleasantly moist. Needless to say, perfectly clean pots must be used, and quite as much care is necessary in arranging the drainage as was the case when filling the pans for the reception of the seeds.

Potting is done in a special way, *i.e.*, the surface of the soil should be made convex so that the leaves "sit" upon a raised mound, and thus, when watering is done, it will drain away to the sides and not lead to damping off at the centre. The soil should be made firm but not too hard, as the gloxinia likes a spongy soil. Return the plants to the shelves, watch the temperature and see that the atmosphere is kept moist. The fine velvety leaves are a great asset in the good appearance of the plants, and full development of these should be encouraged by maintaining plenty of moisture in the atmosphere. The leaves themselves should never be wetted, either by damping or syringing, as they are very liable to decay, especially at the tips, where moisture is most likely to lodge. The best conditions of all are obtained by standing the plants on a closed staging covered by fine shingle or coke breeze, as this can be regularly watered and thus provides an evenly damp atmosphere. Do not make the mistake of crowding your plants: remember that, by the end of the summer, each plant will occupy a 6in. or 7in. pot, over the edge of which the large leaves curve nearly to the base, and therefore sufficient space must be allowed for these and for plenty of air to circulate between them. While the air must not be allowed to become stuffy, anything in the nature of a draught should be strictly avoided, for its chilling as well as its drying effects.

Under genial conditions, rapid growth will be observable, and immediately the first pots are well filled by roots the plants should be transferred to a larger size. Be sure, as these larger pots are reached, that a sufficient depth of drainage is employed, for gloxinias do not root very deeply, and a large body of soil that is not occupied by roots is liable quickly to become sour. Whenever water is applied to the roots, be sure and pour it well to the side of the pot, so that it does not lodge in the crown of the plant, and, at each successive potting, be careful that the crown is not buried beneath the soil. When the first flowers begin to expand, feeding with liquid manures should be commenced and, provided these are used weak and varied as much as possible, applications may be made once a week, taking care, however, that the whole of the soil is first thoroughly moistened. The best way is to well water your plants with plain water first, then pause while this drains through, and then go round the plants again and apply a small amount of manure water to each.

Another aspect of culture (that should be attended to now) is starting a number of the best of the old tubers, with a view to propagation by means of the leaves. It is necessary to get these into vigorous growth as early as possible, with a view to obtaining large leaves with a thick midrib. The earlier these can be taken off and rooted, the larger and stronger the tubers you will be able to obtain by the autumn, and every week they can be advanced is clear gain. This method of propagation is simplicity itself. When the leaves have reached maturity, detach them from the parent plant and nick the midrib in two or three places. In order to economise room the outside edge of the leaf may be trimmed down to a considerable amount, leaving, however, about an inch of the green leaf on either side of the midrib. Fill a sufficient number of pots with soil, as used for potting, and surface with ¼in. of clean sand. The leaves must now be laid upon the surface of this, so that, from the nicked places, roots may form and make their way into the soil.

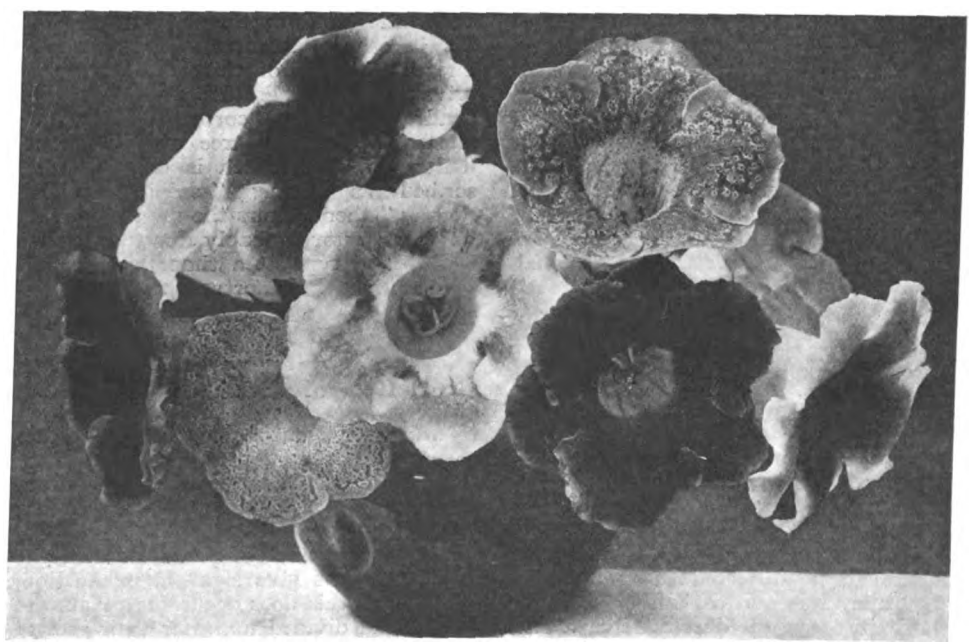

Photo. Sutton & Sons.

THE MOST EXOTIC LOOKING OF ALL GREENHOUSE PLANTS. TYPICAL BLOOMS OF GLOXINIAS.

There are several methods by which the cut surfaces may be kept in contact with the sand, but the one that we have found most satisfactory is using small bent wire pegs pushed through the leaf surface and circling (or rather, half-circling) the midrib. This makes everything absolutely secure and prevents the possibility of their moving during the process of rooting. After each leaf has been firmly secured, the pots containing the cuttings should be covered by a pane of glass or placed in a propagating frame, where the temperature should not fall lower than 65° Fahr. It is most important to keep the atmosphere moist, but not to over-water the soil. This should be kept evenly damp without being wet, otherwise the leaves will certainly begin to rot and decay. Within a few weeks, roots will have pushed out and the cut surface of the midrib begins to form a new tuber. This process is followed by the appearance of leaves and the decay of the original leaf from which they sprang. At this stage, the new plantlets should be lifted from the pots in which they were rooted, potted off and treated as seedlings.

H. W. CANNING-WRIGHT.

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RHODODENDRON HYLOCALLIS

THE question is often asked, What is R. hylocallis, or alternatively, what is Farrer's No. 813? In going through Farrer's specimens I find that he suggested the name "hylocallis" for his rhododendron No. 812. This (Farrer's hylocallis) is named by Sir I. B. Balfour, R. tanastylum (Balf. f. et Ward). The type of R. tanastylum (Ward 1566) was gathered by Ward (1914) at Hpimaw, East Upper Burma. It is typically a member of the Irroratum series and is described by Ward as "a medium sized scraggy bush or more generally thin tree of 20ft. Flowers crimson." Farrer's 812, gathered (1919) above Hpimaw at 8,000ft., is described on the field ticket as "a loose spindly tree of 20 to 30 ft. Flowers a rich crimson scarlet." There is no doubt it is the same as Ward's 1566.

Farrer's 813 is a very different plant. It is a member of the R. sulphureum phylum of the Boothii series, gathered also in 1919 at 8,000ft. in the upper jungle above Hpimaw. Farrer describes it as an "epiphyte on tree trunks." "Scentless flowers of light sulphur yellow." For this plant Farrer suggested the provisional name of R. chrysochloron, but a year later he gathered on the Chawchi Pass at 10,500ft. a plant of field No. 1550. This, he says, equals his No. 813, and adds the comment, "as before usually epiphytic in masses on moss on old Abies in the high alpine zone." Now, Farrer's 1550 is the second type number of R. cerinum (Balf. f. et Forrest), the first type number being Forrest's No. 17592 from the Shweli-Salween divide, collected in 1918. I think there is very little doubt that Farrer is right and that his Rhododendron No. 813 and No. 1550 are the same thing.

Thus we have: Farrer's 812 (1919) provisionally named by him R. hylocallis, but matched by Balfour with Ward's 1566 (1914), R. tanastylum. Farrer 813 (1919, provisionally named by him R. chrysochloron, which equals Farrer 1550 (1920), R. cerinum, the other type number of which is Forrest's 17592 (1918).

Farrer's 812 and 813 are both in cultivation and to the seedling plants under the No. 813 the name hylocallis has in many instances been attached. The explanation of this is that in the privately printed list of Farrer's Rhododendrons, 812 is correctly given as R. tanastylum, "a tree of 25ft.," but under No. 813, which is correctly described as having "sulphur yellow flowers," there occurs the name R. hylocallis, an error probably due to a transposition of type at a time the list was being printed. Unfortunately, this error is repeated in Mr. Wilding's useful list of "Rhododendron Names" and in Mr. Millais' "Rhododendrons, Second Series."

Mr. Farrer writes so enthusiastically of R. tanastylum (*Gard. Chron.*, April, 1921, page 162) that one awaits the flowering of his 812 and the Forrestian numbers of this species with much interest; the more so as he optimistically states that he does not think "the fear overshadowing the usefulness" as a garden plant of "the lovely and fragrant R. McKenzieanum which is in full tenderness of shoot in mid-April" need be felt regarding "its contemporary R. tanastylum, for this is a plant of higher elevations and is still in copious bloom in mid-May." Nevertheless, the behaviour of young plants in north and east Britain at any rate leads one to suspect that this optimism was misplaced. It is, perhaps, too soon to be sure of this.

In conclusion, I wish to note an error in the article in the *Gardeners' Chronicle* referred to above. There R. tanastylum is given as F. 815. This is apparently a misprint for F. 812. Farrer's 815 is R. æmulorum. Plants under this number are in cultivation and, as far as one can possibly tell from foliage of young plants, they are true to number and name.

H. F. TAGG.

HEPATICA UNDER PERGOLA AT GRAVETYE

BEAUTIFUL spring flowers from the mountains, copses and woodlands of North America and some parts of Europe—though not of Britain—are these harbingers of spring.

With the arrival of February a movement can be observed in their lily of the valley like crowns, and by the time the early days of March arrive a little colour may be observed, and by the end of that month the zenith of their beauty has been reached.

The hepatica should never be planted in full sunshine, for it loves a loose, moist, leafy soil such as the decayed matter found at the base of old hedgerows or ditches and shade which is afforded by summer leafing trees, evergreens of any description being too dense and the soil about them too dry. Under such conditions it is astonishing how well these plants thrive, and the gorgeous effects produced by their profusion of bloom is amazing. The favourite haunt of Hepatica triloba—here shown—appears to be the southern oak woods of the Alps, where it is protected from the glare of the sun. It is also one of the mountain plants that creep nearest the Mediterranean wherever the hills approach the sea.

The plants here shown are growing at the foot of an easterly wall and beneath a wistaria-covered pergola, and, as will be seen, little flat stones are placed between the plants which serve to keep them cool and keep down weeds. After the flowers are past, these stones are entirely hidden by the leaves.

This treatment appears to suit the plants admirably, for hundreds of flowers, striking in effect, appear annually from a single plant and form cushions of intense blue.

After a number of years some of the largest plants give signs of exhaustion, and when this does occur the plants are lifted and divided up, after their growth is completed, and fresh plantations made, using a good open and friable soil.

On cold soils the hepatica loses its leaves in winter, but these are to a considerable extent retained in well drained positions.

Personally, I like to see the leaves die off, as the plant is then at rest and flowers better for it; and while in this dormant state advantage should be taken of applying a top-dressing of leafy soil, as the plants revel in it.

Raising from seed is very interesting, for one is never quite sure of the result, and the expectancy of new or varied colour shades, and perhaps something of special note, makes seed raising a fascinating hobby.

The seed should be sown as soon as ripe in boxes of sandy soil, placed in a cool, shaded frame, or even in the open with a slate over it to prevent evaporation and provide shade.

Some of the seeds germinate very quicky and others do not appear until the following spring; these, when large enough to handle should be pricked off into boxes of sandy and leafy soil and grown on in a cool temperature.

ANEMONE HEPATICA TRILOBA is, perhaps, the best known of this interesting genus, and there are several varieties—some with double flowers; but, to me, the beautiful blue flowers, with their protruding (white) anthers, place the type plant in front of them all.

A mass of well grown plants of this free-flowering species is a magnificent sight. Hundreds of these plants are grown here, and their amazing beauty each year as this sea of blue arises from the naked earth—and this when most plants are still at rest—is one of surpassing charm.

A. H. TRILOBA ALBA is a pretty plant with reddish anthers which are in pleasing contrast to the whiteness of the petals. A double white variety is also occasionally grown and is quite a desirable plant, though rather scarce.

A. H. TRILOBA CŒRULEA is a distinct rich blue variety, and a double form of this has very attractive deep blue flowers.

A. H. TRILOBA RUBRA, with single rose-pink flowers, must be included in every collection; also its double form, their distinct colours being conspicuously effective when grouped among quantities of the blue shades. I have, however, found these less robust than the other kinds mentioned. Growing here, and in addition to those given above, there is the handsome large-flowered species, A. H. angulosa, from the hills of Transylvania, and its lovely varieties, including the white one.

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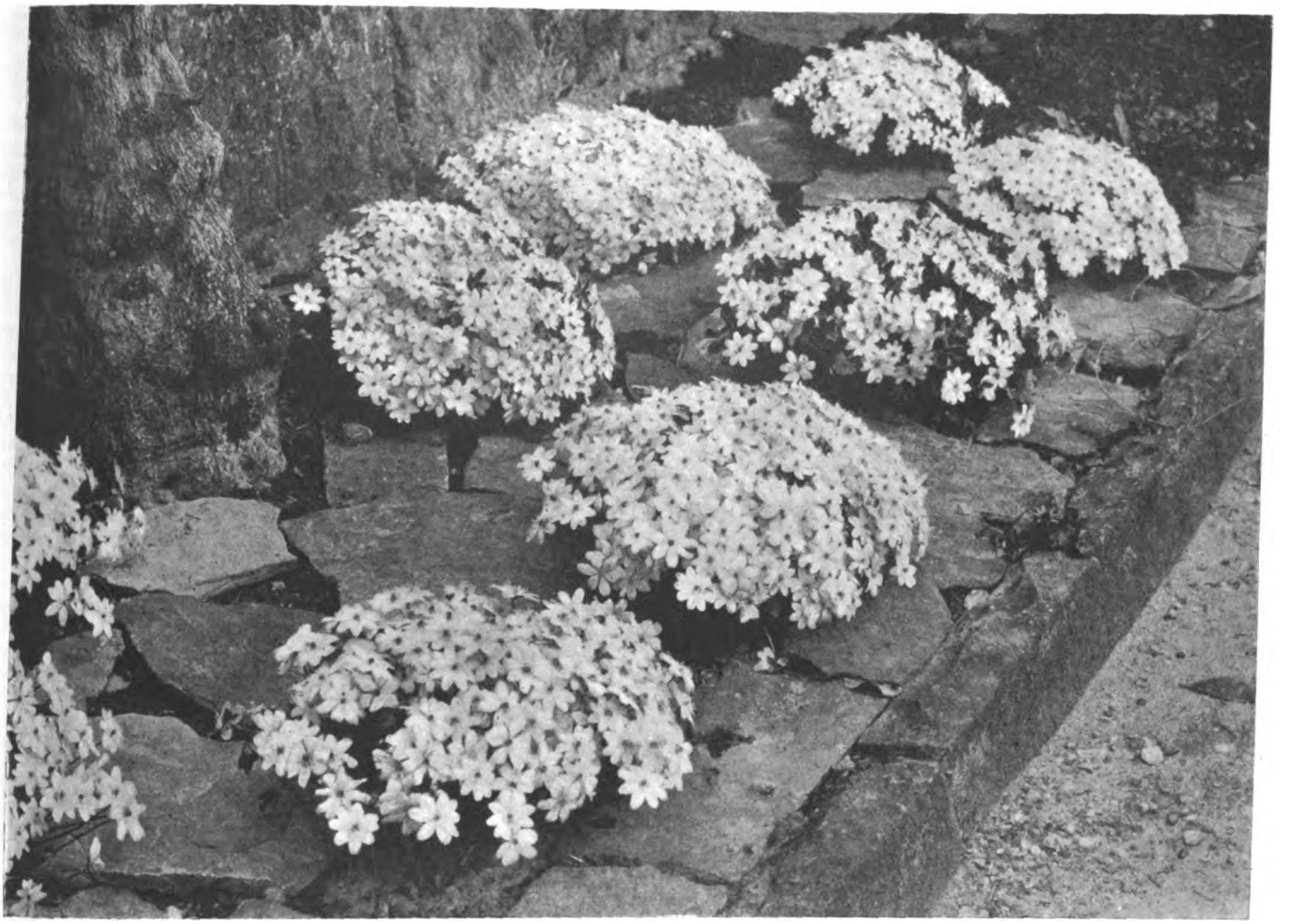

WELL GROWN CUSHIONS OF ANEMONE HEPATICA TRILOBA WITH HUNDREDS OF FLOWERS OF INTENSE BLUE.

A. H. TRILOBA ACUTIFOLIA, from the Central United States.

A. H. TRILOBA BARLOWI, a distinct and lovely blue flower.

A. H. SESSILATA, in which the calyx protrudes beyond the flowers; and

A. H. VARIABILIS, with curiously mottled leaves.

The other species from Hungary, known as angulosa and already referred to, grows in tufts like other hepaticas, with large blue, white or reddish flowers. Among its lovely varieties are such as alba, with pure white flowers; rosea, a rose-coloured form; lilacina, with lilac-coloured flowers. All these forms are excellent when grown in the wild border for very early spring b'oom. E. MARKHAM.

SOME PROMISING FOREIGN ROSES OF 1922

MOST of the new foreign roses only reach us a year after the British varieties are available, and it is therefore a matter of some difficulty to arrive at a definite opinion on their merits or faults after the results of only one year's growth.

The 1922 new foreigners do not promise very much on the whole. So far there is no suggestion of any characteristics or qualities to equal the British varieties of that year, such as Betty Uprichard, Lady Inchiquin, Admiration, Lord Charlemont, Sovereign and Mabel Morse.

A few of them however, which have come under our special notice as showing signs of promise, we will proceed to refer to and describe in detail.

IDEAL, *Dwarf Poly*. (Jan Spek).—This is a sport of Edith Cavell, which it somewhat resembles. The colour is dark scarlet, and blooms are full. Growth about 12ins. high, and its foliage is clean, small and neat.

ELVIRA ARAMAYO, *Pernetiana* (P. J. Looymans).—Very bright and unique India red colour. The buds are pretty, but the blooms are rather shapeless and rough. It was shown in the decorative classes at Croydon by Messrs. D. Prior and Son, and the colour was startling but there was hardly a decent-shaped bloom. Height about 24ins., and foliage fair. Massed in a bed, it should make a wonderful splash of bright colour.

EMILE CHARLES, *Pernetiana* (P. Bernaix).—A sport of Mme. Edouard Herriot, which it resembles exactly so far as growth is concerned, and that unfortunate habit of hanging its head. The colour, however, is much paler, being almost a light coral pink. Height about 24ins. It bloomed well in autumn.

GENERAL SMUTS, *H.T.* (G. A. van Rossem).—Origin: General McArthur × Mme. Edouard Herriot. Very bright deep coral red. Semi-double blooms. Tall and erect growth about 30ins., resembling General McArthur.

SUBSTITUT JACQUES CHAPEL, *H.T.* P. (Bernaix).—Origin: Mme. Mélanie Soupert × Lyon. Large blooms of peach-blossom colour, cupped shape, and very fragrant. Very strong grower, but the weight of blooms bends the trusses over. Height 24ins., and gives good autumn blooms. A promising bedding rose.

SOUVENIR DE F. BOHE, *H.T.* (C. Chambard).—A seedling of Willowmere, growth being almost identical, but the blooms are a pretty pale coppery pink. It is catalogued as an H.T., but should surely rank with its foster-parent as a Pernetiana.

GOOILAND, *H.T.* (G. A. van Rossem).—Origin: Sunburst × Red Letter Day. Bright pink colour with reverse of petals darker, reminding one of Mrs. E. G. Hill. Slightly scented. Height about 30ins. Continuous bloomer till late in the autumn.

These are our first impressions on seven varieties out of about fifty varieties on trial, under conditions which, as this last summer, gave the poorest opportunity for the establishment of their true merit. We shall, therefore, be able to write at greater length and with more confidence after the results of careful observation during a second year's growth, under weather conditions which approach more closely to the ideal.

HERBERT L. WETTERN.

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PRUNING FRUIT TREES

PRUNING HAS PROBABLY GIVEN RISE TO MORE LITERATURE THAN ANY OTHER BRANCH OF HORTICULTURE, BUT AS THE WRITER POINTS OUT PRACTICE IS THE ONLY SURE TEACHER.

PRUNING is one of the most interesting and important, yet difficult, of all operations connected with fruit culture. It is an operation which cannot be satisfactorily learned theoretically. Only practical experience will enable anyone to solve the many problems which are sure to arise.

There are certain principles upon which the art of pruning is based, such as why to prune and when to prune, which are readily learned. Exactly how to prune is not so easily grasped. So many factors play a part in how it should be done, that it is impossible to lay down any hard and fast rules on the subject. Factors involved are such as soil conditions, which may vary so much as to cause two trees of the same variety to grow quite differently in one place from what they do in another. The root system, too, plays an important part, and the eventual pruning of many fruit trees can be largely gauged by knowing the stock on which the tree is worked, and training the tree to the shape suitable for the root system.

Manuring, too, will have some bearing on the question; for instance, much nitrogenous manure together with hard pruning would have a tendency to produce a lot of growth at the expense of fruit buds. On the other hand, phosphates and potash with a minimum of pruning would tend to excessive fruit bud formation.

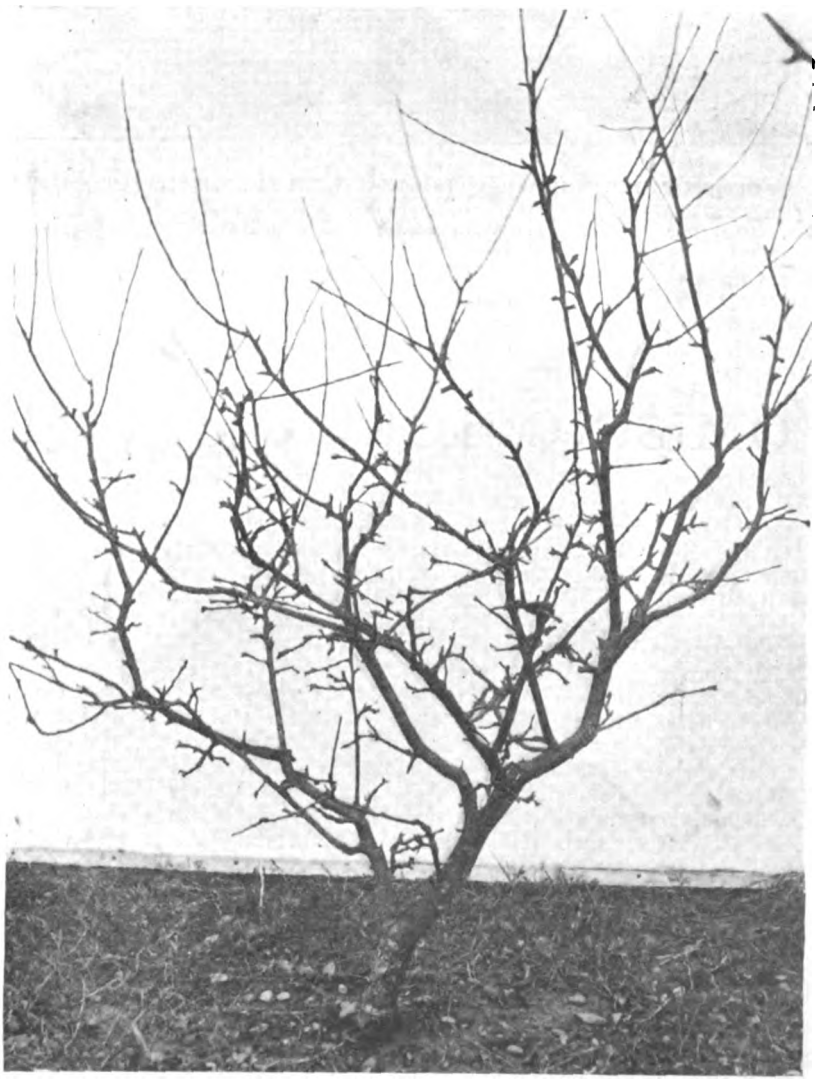
Many varieties, too, differ in their habit of growth, and naturally shy-bearing varieties have generally to be treated differently from an acknowledged regular cropper. In addition to these largely controlled factors, there has to be considered the uncontrolled one of climatic conditions. This may be such as to militate against the setting of the fruit or ripening of the buds, with the result that a tree which has not to undergo the strain of carrying a crop will, in most cases, tend towards the making of wood. It is, in fact, necessary to study each tree individually before touching it with a knife. Every pruner should, therefore, use judgment or, to put it plainly, common-sense in pruning each tree.

Regrettable as it is to make the statement, it is nevertheless true that very large numbers of fruit trees are almost ruined during the three or four years following their purchase from a nursery. Of course, this does not apply to the garden where a trained man is responsible, but rather in the amateur's garden or where a man in charge is more or less in the nature of a handyman and does not profess to be skilled in fruit culture.

Oftentimes the owner is keenly interested in his fruit trees, and is glad to get any hints on the way things should be done. Strangely enough, however faulty the pruning may have been heretofore, the amateur owner seems to imagine that, once the trees have been pruned properly, fruit will automatically follow the next season. As, however, the trees often have to be reshaped after years of wasted energy, it must obviously take some time before a full crop can be expected.

It is the first few years of the tree's life after leaving the nursery which are so important. If skilled attention were then given to continue the training to whatever shape it was intended to be, whether half or full standard, bush, pyramid, espalier or cordon, the resultant pruning would be much simplified. A young tree is usually cut rather hard for the first few years; the object is to aim at producing wood and to train the tree according to the desired shape with regularly formed branches, and to produce a well balanced tree. Once it has got to bearing age, though, the training will be continued in a modified manner until the tree is fully developed, the future pruning will be such as to assist the tree in maintaining a perfect balance between sufficient growth and fruit buds.

Briefly to deal with the training and pruning of young trees: In the case of the cordon, the length should be built up gradually, and the leader pruned back each year according to its strength, usually from one to two feet, until the required height is reached. The lateral or side growths should be summer pruned, usually in July for apples, and a little earlier, according to the season, for pears, plums and cherries (sweet) to six or eight leaves. At the winter pruning these growths will be cut back to two or three buds and induced to form fruiting spurs. The espalier, which has usually two or three pairs of horizontal branches and a leader when bought, has to be strictly attended to until the required number of tiers—usually five or six—are made. The space between each tier should be about twelve to fifteen inches.



A BUSH APPLE UNPRUNED.

The central leader must be allowed to grow each year and tied to keep it vertical, and at winter pruning cut back to a good bud to continue the leader. Two branches for training right and left to form the next tier should be encouraged, and tied down in position. These horizontal branches will be required to be cut back at each winter pruning in the same way as the cordon, until the allotted space is filled, and the same attention paid to side or lateral growths for making fruit spurs.

As distinct from the espalier, which usually arrives from the nursery perfectly formed, the bush-shaped tree generally requires a little shaping.

The best form for the bush is one with six

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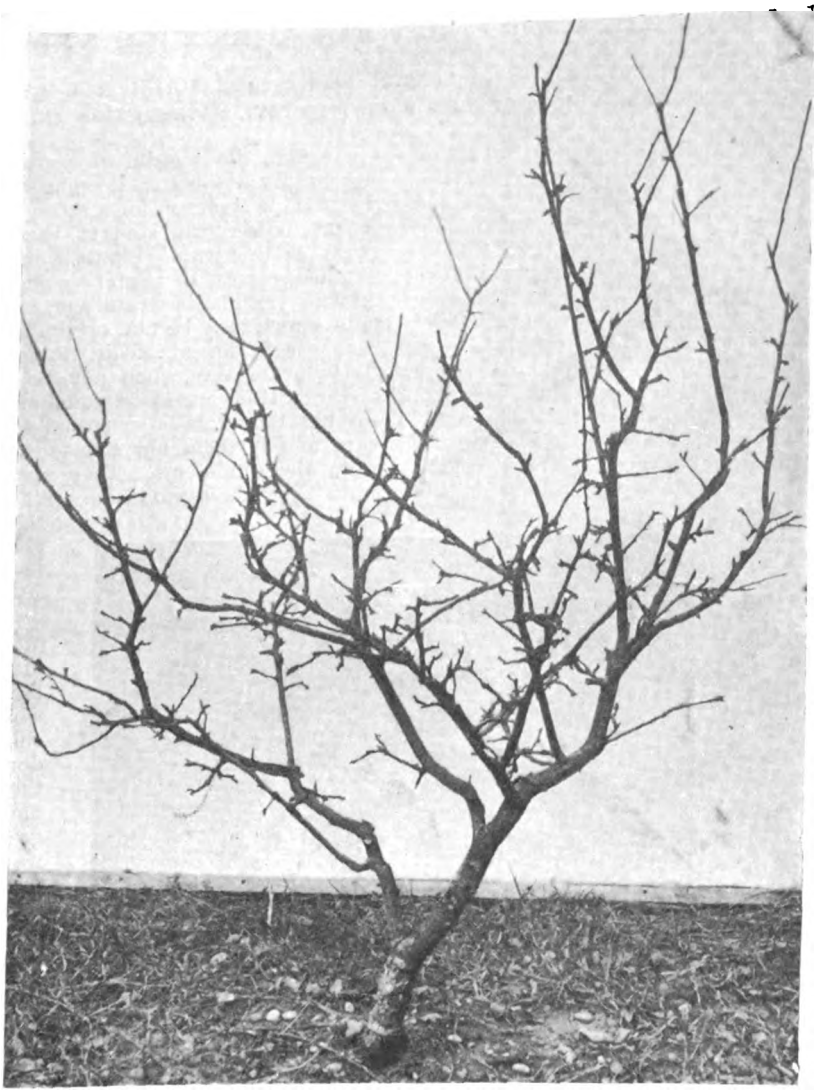
equally placed branches making an open centre, with a stem or leg at least a foot from the soil. The six branches may need some guidance to induce them to grow just where wanted. Also to obtain equality of vigour in these six cordon-like branches, it may be necessary to encourage or retard a branch by raising or bending it, thus directing the flow of sap to assist to that end. The lateral growths and extension of leaders will be treated as advised for cordons.

The pyramid is seldom grown commercially, but is in general use in private gardens, especially for pears. This type of tree differs from the bush by having a central stem from which branches are encouraged to emanate at regular intervals. These and the leader are gradually built up by shortening back during winter, according to their strength, and treating laterals as advised for other forms.

The standard is best formed with six main branches. This will ensure a good open centre, so necessary for the future well being of the tree. Should the tree arrive from the nursery with a head of three branches, these should be cut back to about a foot from their bases and two growths encouraged from each. As the tree develops, sub-mains will be allowed to grow in sufficient numbers to fill the spaces, but never to such an extent as to cause crowding.



THE SAME TREE AS OPPOSITE, BUT PRUNED.

The debatable point as to whether a tree should be pruned or not pruned the first year or season of planting is best, again, treated with judgment. The time of planting and the root system should be the guide. If planted early in the autumn and the roots are in good condition, pruning is best done in the ordinary way. If planted late in winter or early spring the tree has lost the start of the early-planted tree by about 25 per cent., and is perhaps best not pruned. If, however, watering and mulching could be attended to during summer, and even late spring if necessary, the chances are that time would be gained by pruning at planting time if the roots are in good order, instead of waiting till the following winter.

Once a tree has got to bearing age and size it should go on annually increasing in size, and proportionately increasing its weight of crop until the maximum development is reached. During this time the trained tree will require to be annually pruned by shortening the leaders according to their vigour, and to prune the lateral growth and spurs in such a way as to maintain a perfect balance between the production of wood growth and fruit buds.

Winter pruning can be done at any time from the fall of leaf till early spring. Pruning at this time, when the tree is in a dormant state, tends to the production of wood. When a tree is making too much growth and not bearing much fruit it is a sign that the balance between the roots and the branches has been upset by too much pruning.

Climatic or other conditions which prevented fruiting may have been conducive to this undesirable condition, and the tree relieved of the strain of carrying a crop has spent its energies in making growth. In such a case, to continue orthodox spur pruning would not improve matters. The pruner must then resort to other means to restore the balance and induce the tree to make fruit buds. Often the advice is to root prune to help remedy this excess of wood formation, but this should not be done unless other means fail. Root-pruning is better done before the trees come into bearing.

Young trees which show signs of excessive vigour should be lifted carefully, any strong roots pruned back and the tree replanted. This should be done, when possible, in early autumn. Root-pruning is almost certain to be necessary with young plum and cherry trees, and probably so with apples and pears. But other means should first be tried to bring the over-vigorous tree into a productive state, *i.e.*, instead of pruning back the lateral growths to two or three buds, which is the usual practice, some of the more vigorous should be left their entire length, to serve as a kind of exhaust valve for excess of sap. Others may be shortened half their length. The medium size growths should be spurred back to two or three buds, and the weak ones cut out entirely. During the following growing season less growth will be made, and the wood buds on the vigorous shoots will probably be transformed into fruit buds.

When these extension growths have fruited, they may be cut out. In the meantime, others, in lesser numbers, should be left each season. This method of pruning invariably tends to restore the balance, and by such means I have seen trees, which were a thicket of growths, restored to perfectly balanced trees carrying good crops of fruit.

The other side of the question is too little growth and an excess of fruit buds. To re-adjust this, harder pruning should be the aim, with, possibly, attention to other governing factors. The pruning of the well balanced tree is an easy matter, other factors being favourable.

Standard trees, whether they be apples, pears, plums or cherries, after the heads are completely formed, require very little pruning. What little there is to do is regarded more in the nature of thinning out branches annually. This should be done sufficiently, to prevent any danger of crowding, so that full sunlight can reach all parts of the tree. The cutting of plums and cherries, especially the latter, should be avoided as far as possible, or gumming may set in and cause loss of branches.

It is scarcely necessary to mention that all diseased and dead wood should be removed and burnt. Any signs of canker should be attended to by cleanly cutting out the injured part. As each tree is completed all such places and any cut surfaces above ½in. in diameter should be painted over, either with white lead paint or coal tar. A sharp knife should always be used, and clean cuts will generally heal quickly. A. J. COBB.

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PRIMULAS for the CONSERVATORY & GREENHOUSE

THESE CHARMING SPRING FLOWERING AND COOL SEASON PLANTS ARE SUITED FOR ALMOST ALL CONDITIONS, AND IN THIS ARTICLE THOSE SPECIES WHICH WILL BE FOUND TO GIVE SATISFACTION INDOORS ARE DEALT WITH

PRIMULAS in quite a number of species and varieties are very popular and useful for greenhouse and conservatory decoration, and by sowing at different periods the greenhouse is seldom without some representative of the genus.

Primula sinensis (Chinese primrose) in its many varieties is very popular, and deservedly so when one considers the wide range of varietal forms, which includes so many colours, and most of them good pure colours. Another important point is the fact that all the varieties offered for sale come true from seed. P. sinensis was first introduced from China in 1820, and is described and figured in the *Botanical Register*, 1821, t. 539, as P. prænitens. It is also figured in the *Botanical Magazine*, 1825, t. 2564, this later figure very much resembling the P. sinensis stellata forms of to-day. Primula sinensis has never been found wild, but was a cultivated plant in China when first introduced to this country. It has never been crossed with any other species, and the many beautiful varieties of to-day have been obtained by careful selection, and cross-breeding between the several varieties. P. sinensis may be separated into several sections, viz., the smaller-flowered single varieties, which includes a set of fern-leaved varieties, and a set of doubles; there is also a set of so-called giant forms, and lastly the stellata varieties, with their graceful free-flowering habit which makes them so useful and popular for decorative work. All the sections include a wide range of colours, varying from pure white, light and dark blue, pink, salmon-pink, red, scarlet and crimson. Some of the varieties also have fine dark foliage. One of the newest varieties, Etna, has almost black foliage with fiery crimson-coloured flowers. This fine variety, which was distributed by Messrs. Sutton and Sons, is interesting because it was bred on Mendelian lines at the John Innes Horticultural Institution, Merton.

A GOOD VARIETY OF THE STELLATA SECTION OF PRIMULA SINENSIS.

Seed for general purposes should be sown during May and June in a warm greenhouse, the compost consisting of equal parts of good mellow loam and leaf-soil, with the addition of some silver sand. As the seed is always irregular in germinating, it is very important that it be sown thinly; this allows of the more forward plants being removed without disturbing the more backward ones. The seed pans should be kept shaded until germination takes place; during the earlier stages a temperature of 50° to 65° Fahr. is most suitable, avoiding draughts and direct exposure to sun. When fit to handle, the young seedlings may be pricked off into pans or into 48-sized pots. When large enough the young plants should be placed in thumb pots, afterwards shifting them into larger pots as they require it, until they are in 5in. pots, in which they should be flowered, taking care not to re-pot them until they are well rooted. The compost for the final potting should consist of about four parts good medium loam, two parts well decayed leaf-soil, with one part old mortar rubble or sand. Water should be carefully afforded at all times, and at no time must there be any attempt at coddling. From July up to the middle of September they are best grown in cold frames or low airy pits, affording them ample ventilation on all favourable occasions, and shading them during bright sunshine.

About the middle of September they should be placed in a bright airy house, keeping them well up to the roof glass. By growing them on for a second year fine large specimens can be produced: the stellata varieties are specially fine when grown in this way. Plants from a June sowing may be used for this purpose, or a later sowing may be made during August, growing the plants steadily on until they are in their flowering pots, which may be 6in. or 7in. in size. If the older plants are used they can stand in their flowering pots—5ins.—until the following May, when they should be turned out and have some of the bottom leaves trimmed off. The balls may be reduced so that they can be returned to the same sized pots, taking care to pot them low down, as fresh roots will be produced from the old stems. They should be kept close and moist until they are established. When well rooted they should be shifted into 7in. pots, afterwards giving them plenty of air. and treating them in every respect as advised for the younger plants.

At one time there was a set of plants with double flowers of various colours, but, with the exception of the old double white, they have been lost to cultivation for many years. They doubled in a different way from the present-day strains. The double white is, however, still grown for market and decorative work, being very useful for making up in floral arrangements. This and all the old double varieties have to be propagated by means of cuttings or division.

During spring and early summer the shoots should be severed from the parent plant and inserted singly in small pots, standing them in a close case with slight bottom heat; or the bottom leaves of the old plants should be trimmed off, and they should then be mounded up with leaf-soil and sand. When roots are emitted the plants should be severed and potted up separately into small pots. Their after cultivation is the same as that accorded the seedling plants, except that this variety enjoys slightly closer and warmer conditions.

Primula obconica was introduced in 1879, and flowered during 1880, and during 1881 was figured in the *Botanical Magazine*, t. 6582, as P. poculiformis. For some ten or fifteen years this plant seems to have shown little variation. After variation started new forms quickly appeared, and the many fine varieties at present in cultivation have little resemblance to the original plant, with its poor washy-coloured flowers, which the writer remembers before this plant had commenced to show signs of variation. Interesting as its development is up to the present day, it is not within the writer's province to deal with that side of the question.

In common with P. sinensis, P. obconica now affords a wide range of forms and colours, varying from pure white, blue, with varying shades of pink and rose to deep crimson. The form and size of flowers also vary greatly, as well as the size of the leaves. This primula has a somewhat unenviable reputation for its poisonous character, for it causes intense irritation to some individuals when they handle it. It has been stated that the present-day race is not so poisonous, but in the writer's experience it is just as virulent as ever, and nearly every year we have cases of men who cannot handle this plant without suffering.

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The successful cultivation of this primula presents few difficulties, as it succeeds under the same treatment as that advised for P. sinensis, only, on the whole, it is less exacting in its requirements than the sinensis varieties, and by making successional sowings it may be had in flower more or less all the year round. For early autumn flowering a sowing should be made during March; while for winter and spring flowering sow from May to July. Seed should be sown in a warm greenhouse, the subsequent cultivation being on the same lines as advised for P. sinensis, *i.e.*, perfectly cool treatment in cold frames or pits during the summer months. This primula is a free-rooting plant, and when it has filled its flowering pots with roots, enjoys liberal feeding.

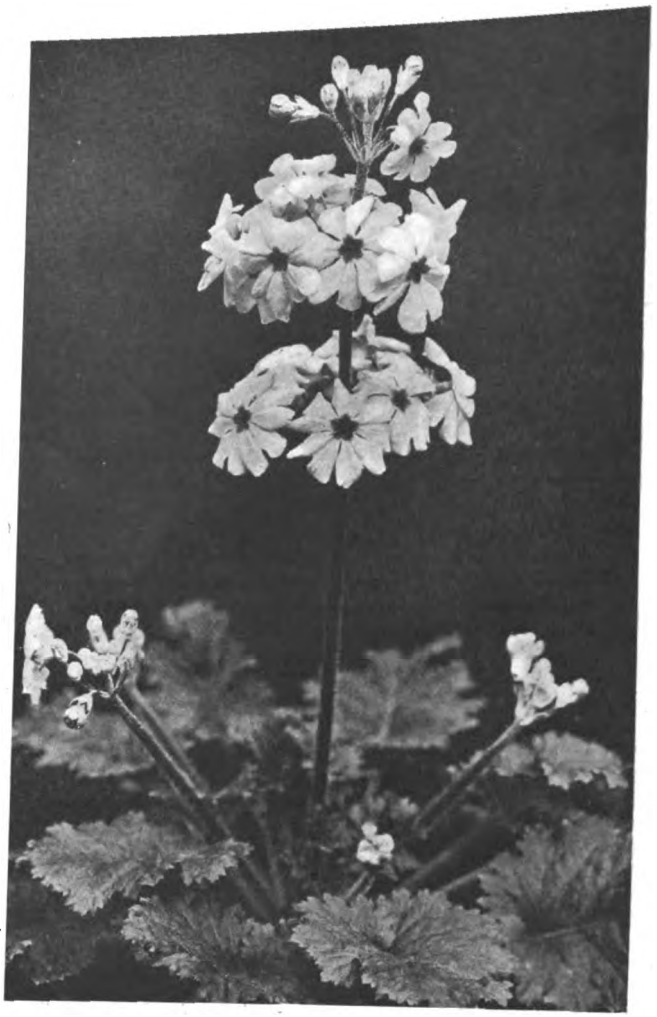
Although Primula malacoides from western China was discovered by Père Delavay in 1884, its introduction is due to Mr. G. Forrest, who collected it during 1905 and 1906. From the seed sent home to Mr. Bulley of Neston, plants were raised which flowered during 1908.

This dainty primula soon became popular, and is now grown in large quantities for decorative work. Under cultivation it soon showed signs of variation, for in 1912 white and double forms are recorded. The flowers also vary considerably in size and colour.

It succeeds perfectly under the same conditions as P. sinensis and P. obconica; indeed, the plant is nearly hardy, for during mild winters it will stand outdoors. It grows very quickly, and it is a mistake to sow it too early, at least in the immediate neighbourhood of London, for such plants get overcrowded with foliage, which is very apt to suffer from damp during the winter. Of course, this may not occur in the country, where better light conditions obtain.

Seed may be sown in a cool house or frame from May to July, according to requirements, giving it the same treatment as advised for the other species. For general work they are best flowered in 48-sized pots; on the other hand, for special decorative purposes perfect little specimens can be produced in 60-sized pots. Such plants are very useful for table decoration and for making up vases and baskets.

Although Primula verticillata was introduced from Abyssinia in 1870, it is by no means so generally grown as it deserves to be, as it is a very distinct plant with pale yellow flowers, and foliage covered with white, mealy powder. It is also interesting as being one of the parents of P. kewensis. Seed is best sown during August, or at least early in the year, as this plant is somewhat slow in its younger stages, and at least fifteen months must be allowed to produce good flowering plants in 48-sized pots; such grown on in 6in. pots for a second season really shows this primula at its best. It succeeds under the same conditions as P. sinensis or P. obconica, growing quite well in any good potting compost.



A TYPICAL MEMBER OF THE MALACOIDES SECTION.

ONE OF THE MANY VARIETIES OF PRIMULA OBCONICA

Primula floribunda is a native of the western Himalayas and was introduced in 1883, and is the other parent of P. kewensis. It has yellow flowers and grows from 4ins. to 8ins. in height, and is a pretty little plant for the small greenhouse. The flowers vary somewhat in colour and size, the variety Isabellina having creamy white flowers. Its successful cultivation presents no difficulty as it succeeds under the same conditions as the other greenhouse primulas, and excellent examples can be produced in 48-sized or 60-sized pots. If seed is sown during May the plants will flower during the following winter or spring.

Primula kewensis occurred as a chance seedling among a batch of P. floribunda at Kew in 1899. The original plant was sterile and had to be increased by division. At the present day it is almost unknown, and is scarce in cultivation, its place being taken by the seed-producing form which was sent out by Messrs. James Veitch and Sons. It was a pity this form was not given a varietal name, as it differs in many ways from the original P. kewensis, which is a much more dainty and graceful plant. But space forbids me dealing with the interesting history of this plant.

Turning to its cultivation, it presents no difficulty, as it succeeds perfectly in a cool house or cold frame during the summer months. Seed for successional batches may be sown from March to July. Good examples may be flowered in 5in. or 6in. pots.

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Primula Forbesi is a dainty little primula which may be described as a miniature P. malacoides. It is useful for the small unheated greenhouse. If seed is sown during August or September the plants will flower the following spring. It succeeds perfectly in a cool house, and several plants may be placed in a 48-sized pot. J. COUTTS.

BOOKS ABOUT PLANTS.—II

GENERAL BOOKS.

THE next phase in a gardening library is that of works of reference, books which, however full of information, are not suitable for what might be called thorough reading. They are in constant use and lie on a shelf by themselves; in fact, they are the backbone of a gardening library.

There are two cyclopædias; one, which I mentioned in the first article, Nicholson's "Illustrated Gardening Dictionary," in five volumes; the other is an American publication of Macmillan's, the "Standard Cyclopædia of Horticulture," by L. H. Bailey, in six volumes. This is rather an expensive publication and is, of course, primarily intended for the guidance of horticulturists in the United States, but in the absence of a modern English encyclopædia it is of great value to gardeners throughout the British Isles,. It deals with practically everything in common cultivation in this country, but leaves out many of the new and rare plants which are not grown in the United States.

Of dictionaries in one volume the most important are "Johnson's Gardening Dictionary," published by Messrs. Routledge, and "Black's Gardening Dictionary," by E. T. Ellis and published by A. and C. Black. The former was first published many years ago, but has been brought fairly up to date; it is certainly the most handy volume in which to look up the bare details about a plant. "Black's Gardening Dictionary" is not quite so comprehensive as regards plants, but is more complete in work to be done in the garden. Both of these books are important in their way, as handy time savers. However, gardening, as a rule, is not an occupation to be hurried, and we must look to some of the general compendiums for useful information in more solid form.

For beginners—and, indeed, for everybody—as a book of reminders, the first and the best book on the general subject is "Gardening for Beginners," by E. T. Cook, published by *Country Life*. This volume deals with everything that may concern the ordinary gardener; it has run through many editions, and there is a new one in preparation which is being brought thoroughly up to date. Another work of the same kind, although written for more advanced gardeners, is "My Garden Book," by John Weathers, published last year by Longmans Green. It is a great work and gives details even of such subjects as garden accounts. Another useful book on a smaller scale is the "Real A.B.C. of Gardening," by A. J. Macself, one of the "Home Garden" books of Thornton Butterworth.

One of the greatest difficulties in the garden is the question of colour: this is a subject which causes more argument than any other. There are practically only two books on colour, "Colour Schemes for the Flower Garden," by Miss Gertrude Jekyll, a *Country Life* book which deals with the subject both from an æsthetic and a practical point of view, and "Colour Planning of the Garden," by Messrs. Tinley, Humphries and Irving, and published by Jack. This is the first book which has dared to make a comprehensive list of plants under their colours. It was a bold idea and, on the whole, has been excellently carried out, although in a few cases gardeners may not see eye to eye with some of the colour classifications of the authors; still, it is a step in the right direction, for many are the heart-burnings every year owing to mistaken colour grouping of plants.

Mention must also be made of the great book written by the founder of this paper, "The English Flower Garden," by Mr. William Robinson, issued by John Murray. It is so well known and admired that no description of it is necessary, but still, after all these years it is used as a standard work upon garden flowers. One constantly receives letters from all over the world quoting it as the authority. Two other books by Miss Jekyll, both published by Longmans Green, have an established reputation: they are "Wood and Garden," and "Home and Garden."

After this we come to a number of works dealing with wide divisions of horticulture. Of these by far the most important are "Trees and Shrubs Hardy in the British Isles," by W. J. Bean, published by John Murray, and "The English Rock Garden," by Reginald Farrer, published by Jack. Both of these are in two volumes and are the standard works on their respective subjects. Both trees and shrubs and alpines are now in the heyday of their popularity, and it will be long before these comprehensive works are superseded. For those who wish smaller volumes on the same subjects and still treating them on a broad basis, I can recommend "Alpine Plants," by A. J. Macself, published by Thornton Butterworth, a very useful book at a moderate price; and W. J. Bean's "Shrubs for Amateurs," published a few months ago by *Country Life*. Both of these are invaluable for anyone who does not intend to specialise in these subjects and yet wishes to possess a representative collection. There is another excellent book on trees and shrubs called "Gardening for the Twentieth Century," by Charles Eley, published by John Murray. Farrer wrote another smaller but charming book on the rock garden, called "Alpine and Bog Plants," issued by Edward Arnold. This is slightly out of date by now, if, indeed, any of his books can be called out of date, but is filled with useful information and advice as to the successful cultivation of alpines. For those who love the old-fashioned herbaceous border there is a most excellent book by Mrs. Philip Martineau, called "The Herbaceous Border," which is published by Williams and Norgate. It, also, is full of useful information, with lists of plants, and deals with a subject which is still the backbone of most British gardens. Another, which deals partly with herbaceous borders and partly with bedding plants, is "Annuals and Biennials," by Miss Gertrude Jekyll, and published by *Country Life*. This is, as is usual with Miss Jekyll's books, full of charm and is exceedingly useful. Another slightly smaller book is "Hardy Perennials," by A. J. Macself, published by Thornton Butterworth. This also gives excellent lists of perennials and is an admirable book on the subject.

There are a number of books on vegetables, from Mr. Robinson's big book, "The Vegetable Garden," published by John Murray, now in its third edition, which is the standard work on the subject, and, perhaps, a little too large for the ordinary gardener, down to a little *Country Life* booklet on the "Storing of Vegetables and Fruit," by Herbert Cowley. M. C. E.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

All communications should be addressed to the Service Department, THE GARDEN, 20, Tavistock Street, Covent Garden, London, W.C.2.

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THE FIRST SHOW OF THE YEAR

THE exhibits and attendance of the initial Show of the year at the Royal Horticultural Society's Hall, Westminster, on January 12th last, does not in any way, we hope, serve as a true criterion of what lies in store for the horticultural public during 1925. The displays were small and the attendance meagre, at least during the morning. Doubtless the previous two or three days of fog had caused all interdicting exhibitors to quit, and one must not blame them. Despite the lack of a large display, there were one or two rather pleasing exhibits which served to stimulate and reinvigorate one with the promise of spring and its sunshine and flowers.

One of those was the small but excellent display of Messrs. James Carter and Co. of Iris tingitana (the Tangierian iris) in baskets. It is only within recent years that the value of this plant has been recognised as an ideal winter-flowering subject for indoor, conservatory decoration. Certainly the plants displayed by Messrs. Carter showed these merits off to distinct advantage. The plants were of good habit and growth, from 18ins. to 2ft. in height, the stems standing stiff and erect, bearing two flowers. The flowers, which are large, are of a delicate blue shade stained with yellow down the centre of the falls. It is a plant which deserves wider and more popular recognition in the future, and Messrs. Carter's exhibit should do much to kindle an interest in the plant.

IRIS TINGITANA, A SUITABLE WINTER FLOWERING SUBJECT FOR CONSERVATORY DECORATION.

A most interesting and varied collection of citrus fruits was on show from Italy through the kindness of Mr. Cecil Hanbury. To anyone who has visited Italy, the sight of the citrus groves is one long to be remembered. One can almost breathe it in the atmosphere. The main species which were on show were Citrus decumana (grape fruit) of all sizes and varieties; Citrus Aurantium, with one or two hybrids; Citrus medica and C. nobilis. These were all well grown and showed the results of careful cultivation and attention. It was quite a unique display at this time of year.

In spite of the recent weather, the carnations shown at the Hall this week were, on the whole, in remarkably good condition. Some bore evidence of the ill effects of fog on their petals. The nurseries of Messrs. C. Engelmann at Saffron Walden are in a fortunate situation where they are rarely troubled to any extent by fog. The two other firms exhibiting carnations were Messrs. Allwood Brothers and Messrs. Stuart Low and Co. Messrs. Engelmann's carnations were all good in shape and form, and the colours clear and bright. Of particular interest was a new variety called Red Laddie, which has just been introduced by this firm. The flowers were large, a pinkish red, and borne on exceedingly strong, wiry stems of exceptional length. Towards the centre of the flower the pink shaded to white. In a few months' time, when the flowers will probably be of a slightly better colour, this carnation will be a valuable asset and should become very popular. Another new variety, medium in size and in colour soft apricot striped with red, has been named Dainty. Such well known varieties as Saffron, Mrs. Hamilton Fellows, Jazz and Laddie showed that they still maintain their excellent reputation. A most useful variety for commercial purposes which was exhibited was Donald, a bright crimson with a perfect calyx and long stiff stems. Messrs. Stuart Low, who have raised many of the carnations which are now in cultivation, staged an excellent exhibit, including some of their past and new introductions. Among those raised within the last year were Sir Philip Sassoon, one of the best crimsons; Lady Hindlip, a white flecked with red; and Mauve Queen. The latter is somewhat incorrectly named, as the colour, which is attractive owing to its uncommonness, is lilac pink. The deep salmon shade of Lady Inverforth was conspicuous by reason of its intensity. For good habit of growth scarcely any surpassed the deep scarlet carnation, Lord Lambourne.

Messrs. Allwood were exhibiting perpetual, border, and their famous Allwoodii carnations. Several of their novelties were of unusual shades, Coral Glow being a new shade of terra-cotta. A brilliant scarlet flower with a perfect calyx was Edward Allwood, while White Pearl was the best white of any of the exhibits. George Allwood, a most attractive salmon shaded a deeper tone towards the centre, could not have failed to please the most critical. There were many other varieties, such as Topsy, Eileen Low, Wivelsfield Apricot, all of equal merit and whose praises have already been sung.

The neatly arranged exhibits of alpines and dwarf shrubs with fresh and dainty flowers, some peeping through the beds of peat-moss litter in which they were plunged, made one feel that spring really is on its way. Bulbous and tuberous-rooted plants in the rock garden are of great value. Those that bloom during the late autumn, winter and early spring are exceedingly welcome, and die down leaving room for the spring-flowering perennials to develop. Early bulbous irises, spring and autumn flowering crocuses, snowdrops, cyclamens, muscari, eranthis and sternbergia are all examples of this type of plant. Messrs. Waterers were exhibiting crocuses, narcissis, cyclamens and primulas, as well as other alpines and shrubs. On their stand the soft mauve of Crocus Sieberi shaded into the deeper mauve of Viola granda, which formed an excellent contrast against the tiny bright yellow of Narcissus minor. The value and effectiveness of the early irises are not fully realised, and from this exhibit their beauty could be well appreciated. Iris Sind-pers, with its pale blue flowers crested with orange, and the deep purple of Iris reticulata and Iris stylosa, are all good examples. Also I. sinda reichi and I. Histrio, shown by Messrs. Cutbush, should not be forgotten; and Scilla sibirica and Crocus versicolor, exhibited by the same firm, add to the general list of bulbous plants for the rock garden.

The chief points of interest on Messrs. Cheal's exhibit of shrubs and alpines were the dwarf conifers. They were in excellent condition and of good habit. Among them were six of the best dwarf conifers for the rock garden—Cupressus Lawsoniana lutea, Thuya elegantissima, Cupressus Fletcheri, Picea excelsa Maxwellii, Retinispora obtusa nana, and the smallest of all, Cupressus minima glauca. Any shrub to be used in the rock garden should be neat, small and compact in habit, and yet not stiff in form. Conifers have the advantage of being attractive throughout the whole year and slow growing. Messrs. Cutbush also had a large and varied collection of shrubs and alpines. The two shades of Cydonia Maulei and C. M. superba looked very fresh against some of the conifers, such as Picea nidiformis, Juniperus japonica aurea and Abies balsamea Hudsonica. A dainty little shrub shown by this firm, with minute bell-like white flowers, was Andromeda polifolia. The berried shrubs were naturally past their best, Cotoneaster horizontalis being in poor condition; but Pyracantha Lelandi still held a fine supply orange berries.

Some of the other exhibits were the following:

Apples and Pears.—Messrs. Bunyard and Co.

Citrus.—Mr. Cecil Hanbury.

Cyclamens.—Messrs. Stuart Low and Co., Caledonian Strain Floriculturists.

Orchids.—Mr. G. F. Moore; Mr. H. T. Pitt; Messrs. Saunders and Co.

Roses.—Elisha J. Hicks.

Rhododendron Leaves.—Messrs. B. and C. McLaren.

Shrubs and Greenhouse Plants.—Messrs. L. R. Russell, Limited.

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Shrubs and Alpines.—Messrs. Carter Page and Co.; Mr. G. Reuthe.

Garden Contractors.—Johnstone Garden Contractor Company.

Gardening Books.—Messrs. Cassell and Co., Limited.

Landscape.—Mr. Percy S. Cane.

Vegetables.—Messrs. Sutton and Sons.

Horticultural Sundries, Tools, etc.—Abbott Brothers (bird boxes and nests), Ashtead Pottery, Limited (china bowls); E. R. Bugge (sprays and powders); Chase Continuous Cloche Company (adaptable plant protectors); Carter (labels and insecticides); A. Everitt (gardening gloves); Thomas Gunn, Limited (tools); Hardy Patent Pick Company, Limited (spades); J. Jardine (Médoc and Guienne secateurs); London Garden Florists (bowls); Radium Fertiliser Company (fertilisers); Mrs. E. Torkington (Wizard plant labels); John Pinches (labels); "Socleano," Limited (labels); Fraser Treleaven and Wilkinson, Limited (flower-pots); Charles H. Pugh Limited ("Atco" motor mowers); Ymagynate Pottery (china bowls, etc.); W. Wood and Son (sundries and tools).

NEW AND RARE PLANTS.

PRIMULA MALACOIDES COURTLAND SEEDLING.—This dainty little species, introduced from China in 1908, with its mallow-like leaves, has been much improved upon in late years, and there now exist several fine varieties. This variety, Courtland Seedling, had as many as twenty flower stems with more numerous whorls of flowers of a rose-lavender shade. The flowers were of good substance and size, while the plant has retained its elegance and grace of habit. The plant appears to be of good constitution, having, no doubt, inherited its robustness from malacoides. Award of merit. Shown by Mr. P. W. Carver, Courtlands, West Hoathley, Sussex.

PYCNOSTACHYS DAWEI.—This plant, with its short terminal spikes of deep blue flowers, is a valuable novelty from Madagascar and will be found to be of extreme service in conservatory decoration. One advantage which it has is that it will thrive at a fairly low temperature. It is a stout herb of from 4ft. to 6ft. high, with a loosely branched pyramidal habit with many crowded flowers. It certainly is a plant which deserves wider recognition. Award of merit. Shown by Mr. L. R. Russell, Richmond.

ORCHIDS.

CYPRIPEDIUM STAMPERLAND VAR. ALPHA (Glorita × Christopher var. Grand Duke Nicholas).—A finely developed flower, with all the segments well above the usual size. The dorsal sepal greenish, bordered with white and evenly spotted with purple; labellum broad and, with the petals, yellowish in colour, stained with red-brown. From Mr. Robert Paterson, Cathcart, Glasgow. Award of merit.

CYPRIPEDIUM WORSLEYI (Hestia × Lady Dillon).—This handsome hybrid is characterised by the dorsal sepal being boldly marked with large spots evenly distributed on a white ground, the basal area greenish; the broad petals bear brownish-red markings. From Mr. H. Worsley, Stonehouse, Haslingden, Lancs. Award of merit.

CYPRIPEDIUM MRS. ELEY VAR. DERRICK (Christopher × Warrior).—An attractive flower having the dorsal sepal orbicular in shape, green at the base, white above; petals and labellum yellowish, marked with brown lines and spots. From Mr. G. F. Moore, Chardwar, Bourton-on-the-Water, Glos. Award of merit.

LÆLIO-CATTLEYA PEPITA VAR. SPLENDENS (L.-C. St. Gothard × L.-C. Colmaniana).—A promising hybrid with compactly formed flowers, of deep mauve-pink colour evenly distributed throughout the sepals and petals, the labellum rich purple, and with the margin prettily crisped. From Messrs. Cowan and Co., Southgate. Award of merit.

A gold medal was awarded to a splendid exhibit of cypripediums staged by Mr. G. F. Moore, Chardwar, Bourton-on-the-Water, Glos.

NATIONAL ROSE SOCIETY.

ALTHOUGH the two hundred or so of members who attended the annual general meeting of the National Rose Society at the Caxton Hall, Westminster, on January 13th, is a small proportion of the 12,000 members, it was quite a satisfactory attendance. As Mr. H. R. Darlington remarked, when seconding the adoption of the Council's Report, it is notorious that shareholders usually take but little interest in annual meetings when the concern is successful, so the assumption is that the members are entirely satisfied with the management. Of the extraordinary success of the National Rose Society there can be no doubts. The membership increases amazingly, the balance on the year's working is enviable and gratifying, and £1,000 has now been invested in Great Western Railway stock, making a reserve fund of nearly £7,000.

Although the Society has been in existence about forty years, it does not seem very long ago when the members were numbered by hundreds, and, when comparatively recently, they became over two thousand, it was thought to be immensely successful. As Mr. Preston-Hillary said, the present success is due to the untiring energies of the hon. secretary, Mr. Courtenay Page, and the policy of the Council in, what we may term, giving the members value for their money.

The greatest interest of the meeting was centred in the proposal which appeared on the agenda, "That the Council be and is requested and authorised to apply to His Majesty's Privy Council for the incorporation of this Society by Royal Charter." In proposing the adoption of the motion, Mr. Preston-Hillary reminded the meeting that a similar proposal was made a year ago, when it was referred back for further consideration. The Council had appointed a sub-committee of four, who had given an enormous amount of time and consideration to the matter and, with the exception of Mr. H. R. Darlington, they strongly recommended the Council to apply for Incorporation. After full consideration of the sub-committee's report, the council had decided by 26 votes to 5 to recommend the annual meeting to adopt the proposal. A copy of the proposed Charter had been circulated, and Mr. Preston-Hillary briefly reviewed the salient points, emphasising the need for safeguarding the officials of the Society and the added dignity and improvement which would accrue. He also said that although Mr. Darlington strongly dissented, he had been of the greatest assistance to the committee in drawing up the proposed Charter. The motion was seconded by the Rev. J. H. Pemberton, who remarked that he was one of the oldest members of the Society and that he was strongly of the opinion that the growth of the National Rose Society demanded the improved constitution.

As there were no other nominations, the officers were all re-elected, and during the course of the meeting the result of the ballot of forty-two members for thirty-six seats on the Council was made known.

SPRAYING MACHINES

QUITE a few years ago, when writing of material improvements which had been effected in spraying machines by leading British manufacturers, I expressed the view that little room appeared to be left for further improvement in what might be termed vital points.

My admiration of the machines of that day was genuine, and perhaps the more profound by reason of the fact that while I had a lively interest in the work of a spraying machine I had nothing of that inventive genius which belongs to the masters of engineering and mechanism. To that is doubtless attributable my error in supposing to be impossible what has in fact been achieved; for the spraying machines of to-day embrace a number of improvements which, now that we have them, are readily recognisable as being of real importance.

Such recognition is, of course, dependent upon a full appreciation of efficiency in spraying machines, and it is my firm conviction that the machine is of even greater importance than the spray, because with a defective instrument the value of the best chemical mixtures prepared can be nullified.

In commercial circles spraying has made remarkable strides of late years, and to-day all successful fruit farmers, nurserymen, and also hop growers, include systematic and seasonal spraying among the essential items in their working programme. Amateurs are less progressive in this matter, for the simple reason that they have not the same facilities for acquiring a knowledge of all that spraying means, and in various ways the amateur is handicapped.

The commercial man, for instance, is provided with opportunities to witness practical demonstrations and tests by which he learns the advantages of the thoroughly efficient machine. He comes into direct contact with representatives of manufacturers who are competent to explain the particular points which make for success, and he therefore walks in the path of knowledge.

The amateur, lacking such privileges, is frequently thrown back upon the salesmanship of a stores assistant who deals with a spraying machine as he would with a vacuum cleaner or a knife cleaner. To one who has no practical experience the brightly lacquered container, the polished handle and general finish of an "X.Y.Z." type of machine makes as strong an appeal as the technically perfect "A.B.C." type, and price naturally becomes a deciding factor. Even when, upon good advice, one may ask for a machine of a certain model, a shop assistant may readily satisfy a client that "here is an equally good, or perhaps practically the same machine." The great point, however, is that polish and appearance are of precious little account; the essentials are strong, durable pumps of great driving power,

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convenient shape for carrying, carefully devised means of filling, acid-resisting plungers, washers, etc., good lances,

and the best nozzles that ingenuity can devise.

A machine that works all right up to a point, but can never reach the tops of one's trees, is capable only of spoiling the whole effects of one's laborious spraying.

A machine that has power sufficient for needs, but which is of a weight or shape that prevents a man doing a good day's work with it, is something to shun.

A machine which has a well made pump but is fitted with a nozzle that releases a coarse spray, or that is continually choking, might as well be a bad machine throughout. For reasons such as these our leading manufacturers, true to the world-wide reputation of the British engineer, have sought to eliminate imperfections rather than to cut down cost of production to a point which means inefficiency. When seeking a spraying machine, even for limited requirements, it is wiser to study quality than economy in first cost, because without the quality both the initial outlay and the future cost of working will be little better than waste.

There was a time when a good many machines were sent out which were weak in vital particulars. Working parts were inaccessible either for cleaning or repair. Washers, and in some cases containers, were vulnerable to the caustic or corrosive action of powerful chemical sprays. Some were defective in the method of attachment of rubber hose, lances, etc., and nozzles were at one time prone to release the spray in the form of a funnel-shaped jet with hollow centre, rendering the perfectly even distribution of the spray over the entire surface of a tree a difficult and somewhat uncertain task. For a long time the method of filling machines of moderate dimensions was tedious and cumbersome, and altogether one needed a very strong faith in the power of spraying to persevere doggedly with a sometimes very disagreeable task. Thanks to careful interchange of views and ideas between manufacturers, pathologists and chemists the improvement of machines made highly gratifying progress, and to-day we have sprayers of convenient size for all requirements which are both highly efficient and are at the same time free from complicated operation. I had almost used the common expression that the machines of to-day are fool-proof.

When first the pneumatic spraying machines were introduced there was a division of opinion as to their value. Some urged that the charging of the machine with compressed air was simple child's play compared with the continuous pumping while the machine was harnessed to one's back. Others declared that the former was the harder work, that it was impossible to gauge the correct pressure required to discharge the whole contents of the machine, and they made much of the fact that the time occupied in charging the machine with air was greater than the time the sprayer could be kept working. These arguments held some weight, but that was before the advent of the "Weeford Pattern" knapsack sprayer, for which we have to thank The Four Oaks Spraying Machine Company, who have consistently kept abreast of the times in spraying matters.

The outstanding features of the Weeford are: the container or tank is made of brass alloy, which will withstand acids, alkalis and the combinations of chemicals used for spraying purposes; the machine is filled from the bottom by attaching a hose-pipe and pumping the liquid from a tub or bucket. The advantage of this method is that there is no over-running or spilling of fluid, as so often happens when the machine is filled from the top with the aid of a funnel.

Furthermore, it is unnecessary to re-charge the machine with air at every refilling, for upon shutting off the tap when the spray is exhausted the air is kept in the tank, and once pumping suffices for the day.

Other good points about the Weeford machine are the well fitted hose and lance and finely manufactured nozzles. The Four Oaks Company have always paid close attention to their nozzles, and two specialities worthy of note are the "Unchokable," which automatically clears itself in the event of a hard particle clogging the aperture, and the "Seneca," which is fitted with a lever, by turning which the spray may be made fine or coarse at will.

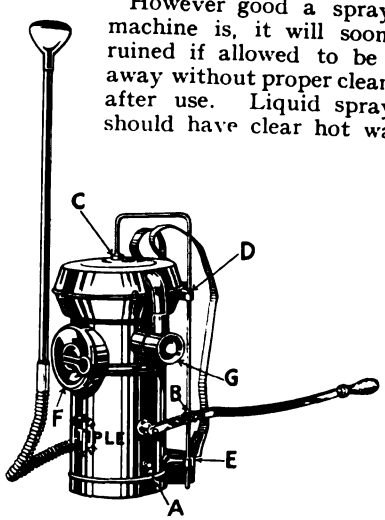
With such a machine the usual pump-fitted type of knapsack would seem to face a great rival, but there are excellent machines of that character for those who prefer them.

There is a distinct advantage in having the pump outside the machine instead of inside the tank, because whenever a new plunger is required it is a simple matter to disconnect the parts.

Of late years, dry powder spraying has gained considerable favour, and manufacturers have applied themselves diligently to the problem of meeting the demand for an efficient powder distributor of a capacity suitable for the requirements of an average garden.

Even distribution is as essential in the case of powder sprays as in the case of liquids, and the trouble with the earlier patterns of distributors was that they discharged the powder in successive gusts, depositing too dense a covering in one place and practically none elsewhere. The "Multiple" knapsack powder sprayer of Messrs. Robinson Bros., Ltd., is so finely constructed that efficient and even delivery is maintained, and with reasonable attention to a few simple details the machine may be kept in good working order for a prolonged period.

In the accompanying illustration of the machine the important "parts" are indicated by the letters as follows: A is a regulator button by which the discharge may be controlled; B is the plunger rod pivot, which will require occasional tightening after being in use for some length of time; C is termed the "stuffing-box"—here an occasional oiling will be required; D and E are guides for the plunger rod, where grease must be applied to assist easy working; F is the lid which, fitted with a pneumatic pad, must be shut down truly after filling, otherwise there will be a leakage while pumping; G is a dual valve port, a single valve port being on the opposite side of the machine. The leather valves are hinged, and upon their proper working depends the maintenance of ample force to drive the powder through the lance.



However good a spraying machine is, it will soon be ruined if allowed to be put away without proper cleaning after use. Liquid sprayers should have clear hot water poured in after the spray has been used, and by vigorously discharging this the interior of the machine will be cleaned. The outside should be thoroughly washed and wiped down with a dry cloth.

Powder machines should not be washed, but well brushed, and must be stored in a dry shed.

A. J. MACSELF.

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SIMPLE GARDENING

POTTING BEDDING-OUT PLANTS.

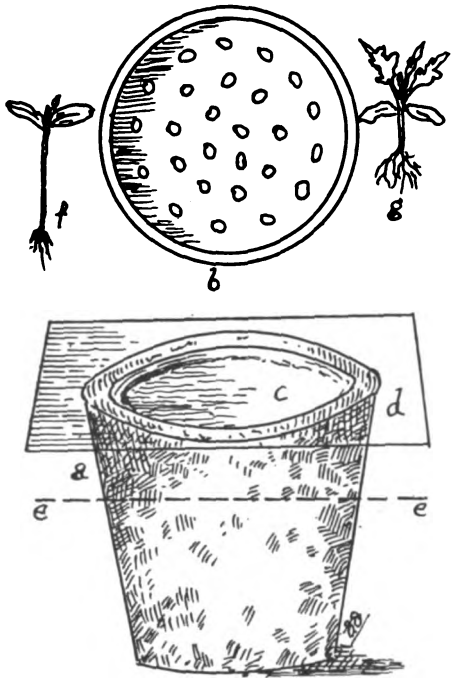
DURING August and September many thousands of cuttings of bedding-out plants are propagated in pots, pans and boxes. The cuttings chiefly dealt with are those of zonal pelargoniums, marguerites, heliotrope and calceolarias; but many more are cuttings of more tender plants. All, however, are usually crowded closely together in the pots and boxes, and it would result in partial failure if they were retained in them till the next bedding-out season came. So preparations should be made now to shift the cuttings to small pots, placing one specimen in each pot. Many of those cuttings of pelargoniums will not possess roots even now—only a hard callus with roots faintly showing through it. These plants will live through the winter in the condition referred to, but cuttings of other kinds rarely do. A good compost of loam, leaf-soil and sand will be suitable for the majority of the bedding-out plants, the more tender kinds requiring a greater addition of leaf-soil. The pelargoniums and other plants possessing few roots should be placed on one side, as the work of potting goes on. For these, extra sand should be mixed with the compost and a pinch of it placed at the base of each badly rooted specimen as potting is done. When the plants are potted they should be watered, but for a short period afterwards watering will not be necessary. Shelves and stages in the warm greenhouse should be occupied by the newly-potted plants.

SOWING SEEDS.

This is the beginning of the seed-sowing season when every lover of a garden, and especially every one who possesses a greenhouse or frame, will be busy with the first batch of seeds. These will be seeds of half-hardy annuals, for both greenhouse and garden, mainly. Of course, everything outside is cold now, and it would be bad policy to fetch soil pots and other requisites from outside stores and forthwith use them for the benefit of the seeds. Rather should all these things be brought into the greenhouse in boxes and allowed to remain there for a week or so before they are used. But in the meantime they should be prepared, the pots and crocks washed clean and dried and the soil sifted, a portion passed through a half-inch mesh sieve, a small quantity through a quarter-inch one and the remainder through a 1in. mesh. The latter will be just suitable for placing in the bottom of box, pot or pan. For all half-hardy annuals, such as asters and salpiglossis, boxes may be used and soil of an intermediate fineness, the more finely sifted portion being used to cover them the right depth. Of course, drainage should be sound, the surface soil level and watered before the seeds are sown on it, the covering soil not watered afterwards. For all dust-like seeds, such as those of begonias, the surface should be a little more sandy and no covering soil put on. Till germination takes place all seeds should be kept from the light.

RAISING EARLY TOMATO PLANTS.

Tomato plants are very similar to stove house plants: if they are not kept warm at this season of the year they soon fail, turn yellow, lose leaves and become very stunted, if they do not actually die. It would be bad advice if I encouraged cultivators to attempt to raise tomato plants at this early date without sufficient fire-heat. If a warm greenhouse is available, the work of raising young plants may be got on with. But many persons fail to grow the seedlings satisfactorily when they can command unlimited artificial heat. Fine soil answers well enough in the case of other kinds of seeds and resultant seedlings, but where tomatoes are concerned it frequently causes failure. The



seed pot or pan should be well drained, dry and clean, especially inside. The compost should consist of fibrous loam, reduced by hand, not sifted; leaf-soil, not too fine, either; and a nice sprinkling of old mortar rubble, in this case passed through a half-inch mesh sieve. Having filled the pot rather more than three parts, as shown at letter *a*, proceed to make tiny holes 1in. apart, shown at *b*, and half an inch deep with a blunt stick, drop one seed into each hole and fill them with fine soil, cover the pot *c* with a loose square of glass, *d*, and water when necessary by immersing the pot in water to the dotted line, *e*, *e*. Spindly plants, *f*, result when sowing is too thick, stocky plants, *g*, when seeds are sown as advised here. The seedlings need not be transplanted at a very early stage, and they rarely damp off as weaklings do.

EARLY CELERY, BRUSSELS SPROUTS AND CAULIFLOWERS.

The inexperienced cultivator must be very careful in the treatment of early celery plants, as any undue check to growth will result in "bolting." Too much heat, especially bottom heat, will also cause the plants to run to seed. Later, when temperatures are, generally, higher, plants raised under cooler conditions rarely run to seed. The few seeds sown now should be scattered evenly and thinly and just covered with fine soil. Place the seed pan on a shelf in a warm greenhouse, not in a propagating frame. For a very early crop a white variety is best. Brussels sprouts require a long season of growth, then the side sprouts will be firm and fit for use at an early date—in November. The plants are gross feeding, so it would be unwise to make use of poor soil for raising the young plants in. A fairly rich compost moderately firm is the most suitable. I prefer old chrysanthemum soil; failing such, use fibrous loam two parts, leaf-soil one part and well rotted manure one part. Sow the seeds in boxes, watering the soil first, but not after they are covered with fine loam; the seedlings break through in a more kindly way than is the case when the soil on them is caked. Cauliflowers should be treated in a similar way, but the tiny plants are more tender. In both cases any undue coddling would be harmful to the growths. Frame treatment is best, just keeping out frost and excessive moisture. The first transplanting should be done when the plants possess two rough leaves.

WINTER-FLOWERING CARNATIONS.

In some gardens these plants are propagated nearly all the year round. The amateur cultivator should insert cuttings freely now, as they are fairly plentiful and will form roots in a few weeks' time without the aid of bottom heat. The side shoots that make the best cuttings are those growing about 6ins. from the base of the flowering stem. Those shoots nearer the top are too sappy for cool treatment, but may be inserted where a gentle bottom heat is available. Of course, a propagating frame in a warm greenhouse is the ideal place in which to root the cuttings, but as such is not available in every garden a simple box arrangement should take its place. I have used boxes for many years with great success; they measure 2ft. by 18ins. and 12ins. deep. In the bottom a thin layer of quite rotted leaf-soil is placed, then a layer of washed sand 2ins. deep. The cuttings are inserted about 2ins. apart each way and then watered. The covering glass is wiped dry morning and evening, but care is taken to avoid overdryness of sand. The latter must be maintained in a moist condition, and to ensure this the cuttings are freely watered when the sand begins to dry up, the glass being left off the frame nearly a whole day at that time, but not at any other. GEO. GARNER.

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THE LOVE OF TREES

I HAVE a notion that trees in this country are ceasing to be admired as much as they should be. I hope I am wrong, but it seems to me that in the first half of the nineteenth century everybody—man, woman or child—learnt to appreciate a tree, whereas nowadays they pass them by with scarcely a glance. The literature of the former period bears testimony to the general love of fine timber, and even an author like Thomas Love Peacock, who laughed at everything else, was fervent in his admiration. Possibly there were more of what might be called specimen trees in existence at that time, for books of the period mention many warriors which have since disappeared; now there appears to be a lack of young warriors approaching maturity. We seldom hear of new reputations being won for size, or beauty of outline, or grace of habit; certainly Elwes and Henry ransacked the country for examples for their monumental work on our trees. I have distinct misgivings as to the interest which the ordinary human takes in them.

It is true that people go in their thousands to see the chestnuts in Bushey Park on Chestnut Sunday. It is also true that they are magnificent with their great panicles of flowers, but once the flowering season is past they are forgotten except by those initiated into tree worship, and they are just as fine when out of flower. At the present moment there is an outcry against a proposed railway through the finest portion of Sherwood forest, which would probably mean the desecration of many forest giants, but the outcry is not nearly loud enough. It should be heard from the housetops. I have not actually seen these trees, except in photographs, but their destruction is more than a local matter, for remains of old forests are slowly disintegrating through time, and the sentiment of the nation should be touched to see another landmark ruthlessly destroyed. I believe that there is an alternative scheme which misses these relics of the Middle Ages, so everyone should exert their influence towards saving what little we have left to us of our landmarks in trees. If something is not done quickly, this, like many another worthy cause, will die of inanition.

Comparisons are odious, but I must draw the attention of my readers to the enthusiasm with which Americans regard their trees. They begin with a handicap because there are few individual trees either in the United States or Canada which are surrounded by any sentimental attraction. There is an occasional exception, like the Redwood in California, but there are very few. Yet both the inhabitants of Canada and the United States are keen lovers of trees. Large areas of the country are practically treeless by nature, which perhaps explains part of their affection. We, on the other hand, may be so accustomed to them that we think little about them.

Both the technical and the daily Press of America have frequent articles on the subject. I give below a sample taken from an American contemporary:

"A DOZEN DAILY THOUGHTS FOR TREE LOVERS.

"The following reasons why trees should be planted, protected and appreciated were advanced by a city forester in Chicago. We glimpsed them in a recent issue of *The Davey Bulletin* and gladly pass them along. They're good reasons, and true.

1. Trees are beautiful in form and colour, inspiring a constant appreciation of nature.
2. Trees enhance the beauty of architecture.
3. Trees create sentiment, love of country, state, city and home.
4. Trees have an educational influence upon citizens of all ages, especially children.
5. Trees encourage outdoor life.
6. Trees purify the air.
7. Trees cool the air in summer and radiate warmth in winter.
8. Trees improve climate and conserve soil and moisture.
9. Trees furnish resting places and shelter for birds.
10. Trees increase the value of real estate.
11. Trees protect the pavement from the heat of the sun.
12. Trees counteract adverse conditions of city life."

This is a good idea, and the twelve points mentioned should be hung up in every school, for no one can ever start too young to love trees. E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

MECONOPSIS IN PERTHSHIRE, by A. H. Harley.

THE CONSTRUCTION OF A LAWN, by Reginald Beale.

LILIUM AURATUM, by A. Grove.

PLANTING RETAINING WALLS AND BUTTRESSES, by Dr. R Lloyd Praeger.

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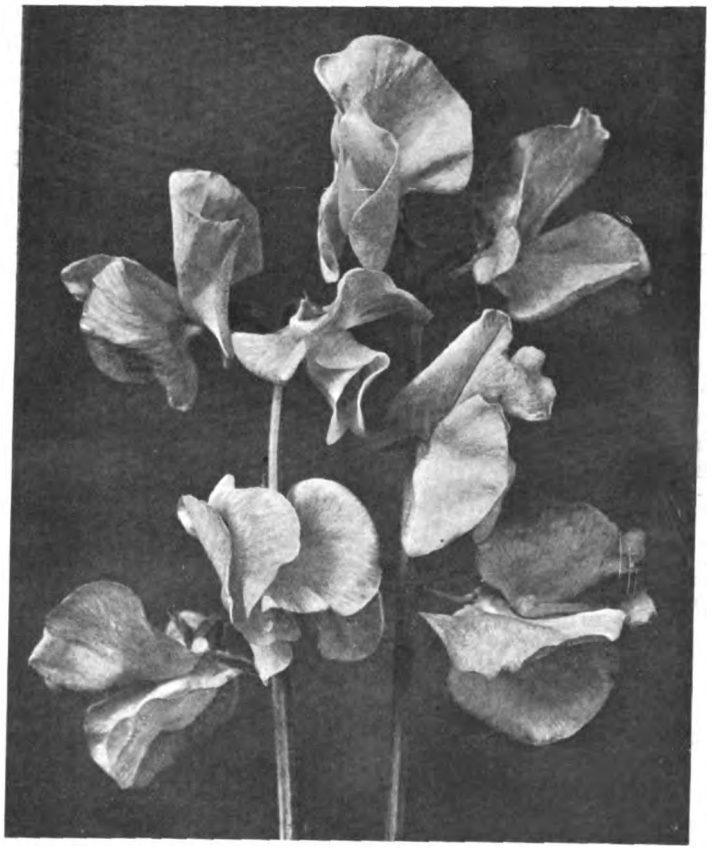
SUCCESS WITH SWEET PEAS

THAT THE POPULARITY OF THE SWEET PEA IS INCREASING IS EVIDENCED BY THE INTEREST WHICH IS TAKEN IN IT BY ENTHUSIASTS AND BY THE NUMBER OF NEW VARIETIES WHICH APPEAR EVERY YEAR.

ALTHOUGH it is fairly well known that autumn-sown sweet peas almost invariably give better results than those sown in the spring, there are far more sweet peas sown at the present time, or a little later, than in the autumn. I suppose every one of my readers has grown sweet peas, and in any case, everyone knows them well. Probably in no other flower have such great advances been made during the past few years. Compared with the sweet pea as it was twenty years ago, there is a really remarkable improvement, and although Nature presented us with a new type—the Spencer type—about 1903 as a "rogue" or "sport," the credit for improvements is mainly due to hybridists. One great reason for the increasing popularity of the flower is its ease of culture and adaptability. If one could apply the word "fool-proof" to flowers, one of them would certainly be the sweet pea. It will succeed on almost any kind of soil if given no more care or attention than one bestows on ordinary flower or vegetable crops, in spite of the elaborate cultural instructions one often hears and reads. Again, the sweet pea will respond to elaborate cultivation to a greater extent than almost any other flower, and give greater results for the care and expense entailed, I suppose over 95 per cent. of my readers do not grow their sweet peas for exhibition purposes, but simply for garden decoration and cut blooms. Serious exhibition culture entails, of course, a greater expenditure of time and care than ordinary culture, although I am aware that many with no thought of exhibiting grow their sweet peas on the "single stem" or exhibition system. Probably the excellence of the results they obtain more than compensates for the extra trouble.



ROYAL SOVEREIGN, BLOOMS OF A FINE ORANGE SCARLET.

Briefly, exhibition culture simply means that the sweet pea plants are transplanted 1ft. or more apart in soil which has been trenched and well manured to a depth of 2½ft. to 3½ft. and grown up on bamboo canes or other supports, the top growth of each plant being restricted to one, two or three stems. These afterwards are treated in the same way that one treats a tomato plant, all side shoots or laterals are carefully removed as soon as they can be handled, tendrils, too, are taken off before they develop. The plants are given all the nutriment the roots can assimilate without unbalancing them. To put exhibition culture in a nutshell, a highly encouraged root system throws the whole of its energy into a greatly restricted and pruned haulm, and it naturally follows that larger flowers and longer stems are obtained, but plants treated in this way will not, of course, give nearly the quantity of bloom that an unrestricted plant will produce if left to itself and grown naturally.

The fact that the sweet pea is very nearly hardy is not generally realised, and many amateur growers kill their plants through kindness, giving artificial heat or unnecessary protection, with the inevitable result that when transplanting time comes, they have thin or lanky plants which under no circumstances would give even fair results. Sow in the autumn if possible; if not, one may expect good results from a February or even March sowing, but the earlier the better. I need hardly tender the advice to obtain good seeds, they cost no more to grow than inferior ones. Although outdoor sowing in most districts is fairly safe, the majority of growers prefer to plant in pots or boxes in a cold frame or greenhouse, and transplant later. There is much to commend this method, especially with expensive seeds.

The best time for spring sowing is from the middle to the end of February. As a potting medium, any ordinary garden soil will do, provided it is porous and not too rich. Crock the bottoms of the pots or boxes, sow the seeds ½in. deep and allow about 2 sq. ins. of surface space to each seed. A little heat may be necessary to start germination if the weather is frosty. Water immediately after sowing if the soil is inclined to be dry. Until the young plants need transplanting in April, grow them along slowly, giving all the light and air possible. *The great secret is to keep the young seedlings sturdy and hardy from the time they appear through the soil.* I would emphasise the point that they are hardy and should not be treated as tender greenhouse plants. Mice may be checked by setting "breakback" traps. One cannot recommend the method of rolling the seeds in red lead or soaking in paraffin to check mice, as this does more harm than good. If birds are troublesome, cover the frame with fish netting, or a few strands of black cotton stretched just above the plants will prove effective.

Now as regards the preparation of the soil, this should have been done, of course, in the autumn, the earlier the better. One cannot lay down hard and fast rules, for naturally growers must adapt the time and method of soil preparation to their own circumstances. Provided one's object is simply cut flowers for the house, sweet peas will do quite well on soil which has just been dug over and manured, as for potatoes and other vegetable crops. If one is more ambitious, better results will follow if the ground is trenched or dug deeply, mixing in a good dressing of well rotted horse or farmyard manure to within 9ins. of the surface. It is not necessary to trench deeper than 2½ft. to 3ft. whatever one's object. By the way, there is no effective substitute for good horse or farmyard manure, and if these are obtainable, it is wise not to rely on artificials, for no fertiliser is cheaper and better than natural manure in the long run. In trenching, one may advantageously mix in a dressing of burnt wood ashes and bone meal or soot on nearly any soil. Sweet peas like a firm, settled soil. A large quantity of sweet pea seed is sown entirely in the open, and this can be done from the end of February to the second week in March, although here again autumn sowing is more satisfactory if the plants pull through the winter. Do not sow when the ground is in a sodden condition, for obvious reasons. In outdoor sowing, drills should be made with a hoe 1½ins. deep, allowing 2ins. or 3ins. between each seed. A dressing of soot on the surface of the row or clump after sowing will do no harm and checks slugs.

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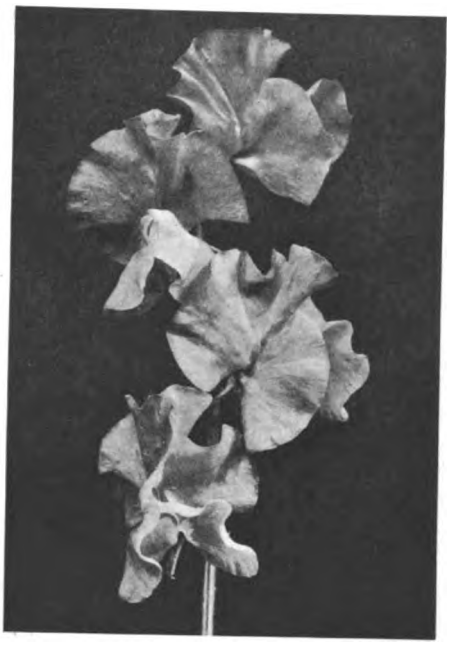
Planting out time will depend on the state of the soil and on the season. It can be done from the middle of March to the end of April, but keep off the ground if it is in a clingy or wet state and await a fine spell. Gently shake the old potting soil from the roots and throw away any plants which appear weakly when transplanting. I know that sometimes the advice is tendered that on no account should the roots be disturbed, but the above is my own method after repeatedly trying both. Should you intend to grow for exhibition purposes, plant out 9ins. to 18ins. apart, according to the vigour of individual varieties, but for ordinary cut flower purposes 4ins. to 6ins. is ample. Make the holes with a trowel or dibber, spread out the roots and gently fill in the soil afterwards, making the earth firm round them. Support the plants at once with twigs and take due precautions against slugs and birds. If the ground is dry, they may require watering, but do not do too much of this. Keep the surface loose with a hoe; in fact, one cannot be too energetic with this implement during the spring and summer months.

In a short article a detailed description of the exhibition system of culture is impossible, and to those of my readers who are not conversant with modern methods I would advise the purchase of a good practical book on the subject. Sticks or boughs and netting are generally used as a support for the plants, and these should be placed against them early, for it is detrimental to their ultimate success if left to fall about.

One hesitates to give advice respecting the treatment of the plants after they commence flowering, for this depends so much on the weather. The tendency among the inexperienced, I find, is to over-water and over-feed. After transplanting, it is rarely advisable to water until mid-June. Feeding the plants, too, presents a difficulty, for this not only depends on the state of the weather, but on the condition of the plants themselves. Artificial manures should not be used unless the grower has experience of their effect and knows for certain the right quantities to give. Always underdose rather than risk overfeeding. If the preparation of the ground has been really good, feeding may not be necessary at all, and pure, soft water only will suffice once every eight days to a fortnight, according to the weather. An excellent and safe liquid manure can be easily made by suspending a bag containing equal parts of cow or sheep manure and soot in a tub filled with water. Let this stand for a few days, and when watering dilute the liquid with two-thirds soft water. If the soil is very dry, give pure soft water before applying liquid manure. A surface mulch of horse litter or spent hops will retain the moisture and keep the roots cool in hot weather. To prolong the flowering period pick off dead blooms and do not allow seed pods to form.

The Editor has asked me to give a list of first-class varieties. I well know the difficulty the average grower experiences each season in knowing what varieties to select. He may read the selections of experts given from time to time in the horticultural Press and wonder why they vary considerably. The fact of the matter is that there is no such thing as the "best" dozen or eighteen. Some kinds which suit certain soils and localities admirably are seen to less advantage in other districts, while the weather conditions during successive seasons will be found congenial to certain varieties and adverse to others. Again, there is that element of personal taste which alone makes any selection unsuitable to everyone. It is even asking for trouble if one attempts to indicate the best variety in every colour section. I will give what I consider are the best twelve, but it must be understood that this is my personal choice of the peas I would grow myself. All those I mention are suitable both for exhibition or decorative purposes. They are as follows: Royal Scot, W. J. Unwin, Charming, Blue Butterfly or Mauve Beauty, Powerscourt or Austin Frederick Improved, Mrs. C. W. J. Unwin, Warrior or The Sultan, Royal Purple, Constance Hinton, Matchless, Picture or Hebe, and Unwin's Crimson, Charity or Crimson King. Other excellent varieties which would enhance a larger selection include Youth, Valentine or Edith, Mrs. H. Richards, Elegance or Comrade, Lady Gay, Royal Sovereign or Wizard, Sunset, Renown, Mrs. Tom Jones, George Shawyer and May Cowdy. Of these the following need shading in sunny weather: May Cowdy, Wizard, George Shawyer and Royal Sovereign, and the last named, although a most wonderful colour, also requires very good culture to obtain size. Where I have given two or more varieties I consider them practically equal in value, and readers may use their own judgment should they wish to follow my choice. It should be clearly understood, as I have said, that the varieties given will only suit certain tastes and conditions.



ROYAL SCOT, OF A CRIMSON SCARLET SHADE, SUITABLE FOR HOUSE DECORATION.

SWEET PEA PICTURE WHICH IS SUITABLE FOR EXHIBITION OR DECORATION.

It is now generally known that sweet peas, when grown under glass, alter their shades to a greater or less degree, according to the variety, and those which are excellent for under-glass culture are often unsuitable for one's garden. This is particularly noticeable in the orange, salmon and to a less extent the lavender, cream-pink and delicately flushed shades. I would advise readers who wish to grow sweet peas under glass to confine their selection of varieties to the whites, creams, cream-pinks, salmon-cream-pinks, flushes, salmons, cerise and orange shades, orange-pinks, blues, lavenders, and a few of the flushes and fancies that have salmon or orange in their colouring.

I have often been asked whether I think the sweet pea is practically played out as regards improvements; this certainly seems to be the position on the face of it, for there is now such a diversity of shades. When one considers the vast improvements that have been made, there seems little room for more. I am aware that a score or so of novelties are introduced every season, and from past experience I know that not one in ten of them is destined to become a general favourite, yet there is ample scope, for there are many colour sections which one would like to improve respecting their size and shape of flower or vigour of growth. In many colour sections, too, it is the colours themselves that need improving, and in some, all the existing varieties show a tendency to burn or fade, more or less, in the sun. Others are unsuitable for cut flower purposes, for they will not keep their original lustre after a day in water. We may get another valuable "break" or "sport" either as the result of crossing sweet peas among themselves or with another species, or perhaps Mother Nature may again take a hand and give us a new type as desirable as Countess Spencer was in 1903. It is almost a certainty that many real improvements have been passed unrecognised, for they cannot all have put in an appearance in an expert's garden.

CHAS. W. J. UNWIN.

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HEATHS IN WOODLAND

HAVING a woodland garden, the trees being for the most part old oaks and the soil a light, shaley loam, we have done a good deal of experimenting with a number of dwarf flowering shrubs as undergrowth. Of these none has given us greater satisfaction than some of the hardy heaths, Erica carnea proving by a long way the best. Two or three years ago a piece of rising ground beneath some of the oaks was planted with this species and, notwithstanding the fact that the place had been a failure with various other plants, owing to the shade, the dryness and poverty of the ground, E. carnea has turned out an unqualified success. Indeed, I can at the moment call to mind no other shrub that will bloom with such prodigality in similar conditions and one wonders why it is not more often used in the woodland.

ERICA CARNEA, WHICH HAS PROVED AN UNQUALIFIED SUCCESS WHEN PLANTED IN WOODLAND, DESERVES TO BE MORE WIDELY USED FOR THIS PURPOSE.

Put into the soil in small clumps, such as one could easily grasp in one hand, with a little leaf-mould worked in around the roots, the heather went away from the start and quickly covered the ground, which, last January, when the accompanying photograph was taken, was a mass of colour. No sun, save that which filters through the branches of the old oaks, ever reaches the heather; but while it may be urged that these branches are leafless when the plant is in bloom, one has to acknowledge the fact that the flower-buds are formed when the oaks are in full leaf.

The E. carnea we grow in this way is simply a good form of the type, the flowers being a vivid carmine-crimson. Some of the named varieties appear to be equally robust and prolific, but these we have not tested under the above conditions. They afford a wide range of colours, from palest blush to something approaching a full crimson. What we really want in E. carnea, and what would be invaluable for woodland planting, is a pure white form which will flower as freely as the type. E. c. alba, at its best, is a poor thing, and we have abandoned it as worthless.

Though it does not flower so generously under trees as carnea, E. Darleyensis may be used in such a situation with no little satisfaction. Its habit of coming into bloom in November is much in its favour, and in foliage it is, I think, more pleasing than either of its parents, carnea and mediterranea. The last-mentioned we grow in groups in the woodland; but while it, again, is not quite so free with its blossom in full shade, we find that in places where it gets a little sun for part of the day, as on the outskirts of deciduous trees, it will put up a show of colour that fully entitles it to a place among woodland heaths. Moreover, E. mediterranea has a white form which is a lovely thing, rather shorter than the type, but an abundant bloomer with a compact habit. The variety known as hibernica (glauca) has a distinctive charm of its own and is, if anything, rather happier in shade than the species.

The only other heath which I can recommend, on personal experience, for planting in woodland is E. cinerea, our own bell-heather. This, together with a multitude of hybrid offspring, is a weed, and a very pleasant one, all about the banks and walks of our woodland garden. If it does not make such massive clumps, or bloom with such liberality in shade, or part shade, as in full sun, it seldom fails to make a worthy show of colour. The best variety for woodland planting is, perhaps, rosea, a very robust grower with fine heads of bloom in a full-toned rosy-crimson, free from that bluish tint that so often mars the beauty of the wild plant. Two of the newer varieties of this species, pallida and Apple Blossom, also promise well. A better drought resister for dry, poor, stony soils than E. cinerea I do not know.

I may add that in planting all these heaths in woodland the ground is merely cleared of scrub and weeds, loosened with a pick and forked over. A handful or so of leaf-mould is put round the roots, as suggested above, and the soil is not firmed in too hard. But one essential is really deep planting, that is, the plant must be put in well up to the green. Treated in this way, the job being done in autumn or spring, we rarely lose a plant. No peat is ever used. EE. carnea, mediterranea and Darleyensis are, by the way, said to be quite at home in a calcareous soil. A. T. JOHNSON.

HARDY FERNS FOR TOWN GARDENS

THE difficulties and problems of town gardening have provided a theme for many writers, but one is somewhat at a loss to explain why the cult of hardy ferns has not been more persistently advocated and enthusiastically embraced. Infinite charm and absorbing interest are the birthright of a tribe of plants which ask so little in the way of favoured conditions that instead of elaborating exacting demands and urging the necessity for special provisions one is disposed to query whether a garden exists where at any rate some of the robust species and varieties cannot be successfully grown.

Town gardeners, who, at the expense of much time and heroic effort, achieve just mediocre results in their endeavours to keep alive many kinds of plants that yearn for the unrestricted light of the sun and free circulation of pure air, might make a paradise of their gardens by specialising in hardy ferns, a hobby and an intellectual study not one whit less fascinating than the cult of the orchids of the magnate.

There is a reason for all things, and when I ask myself, as I frequently have done, why hardy ferns fail to attain the widespread popularity they so richly deserve, the answer I give myself is that a general impression exists that so elegant and graceful, so fragile in appearance are the gossamer fronds of the finer varieties that the term "Hardy" ferns must be a misnomer, and that such plants cannot

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be expected to thrive in an ordinary garden. Pray let that impression be banished from the mind as an hallucination. Examine the accompanying illustration and judge of the rude health displayed by every plant in this particular choice collection. This photograph portrays a portion of Mr. Frank Butler's garden, enclosed by walls and buildings in the heart of Reading, a town garden in the full acceptance of the term.

One other point, I am convinced, helps to keep hardy ferns from their rightful position in the vanguard of popular plants, *i.e.*, their awe-inspiring nomenclature. Even to one accustomed to ordinary botanical names it must be confessed that contemplation of such an appellation as Polystichum angulare divisilobum nitescens grande is somewhat bewildering, and while readily acknowledging the necessity for an adherence to systematic nomenclature, it does appear in the case of ferns that the laborious system adopted savours of pedantry. Whatever might be the difficulties involved in revising the nomenclature of British ferns the task would be well worth while if the result would be the removal of an obstacle to their extended culture. Such revision may be accomplished some day, but meanwhile the bogey is not really so great as his shadow, and the lengthiest name becomes simple when once the first and essential principles of botanical rulings are grasped. Mr. Butler is an expert judge of dogs, and he assures me that mystified though he was at first by ramulosissima, ramocristatum, divisilobum elegantissimum and the like, he soon found the names quite as readily memorised and as intelligible as the registered names of pedigree dogs.

The great thing to realise is that hardy ferns are not difficult to manage, and will in fact grow where many commoner plants merely languish.

As may be seen from the illustration Mr. Butler's fernery is backed by a high wall, and butts on to a garden shed. For the greater part of the day the plants are in shade, but the major portion receive some sunlight in the afternoon. The wall in the photograph faces west, while the corrugated iron of a shed faces north, and there are tall trees, the roots of which ramify through the soil beneath the raised bank which forms the root-run of the ferns. The tree roots are no detriment, for they serve as drainage or absorbents of superfluous moisture, and it may be well to observe that the prevalent idea that ferns must have boggy conditions is erroneous so far as the great majority of species and varieties are concerned. Plentiful supplies of moisture during the growing season will be enjoyed, but stagnation is unhealthy.

Rough porous stones are utilised to produce a pleasing setting, and to retain the compost, which, by the way, is not entirely peat as many people imagine it should be. Some peat is useful, but fibrous turf loam, good oak or beech leafmould, plenty of pulverised bricks, limestone chippings, some charcoal and wood ashes make a highly satisfactory compost for most ferns.

The illustration shows some magnificent pieces of choice varieties and forms of Polystichum angulare, while crested Scolopendriums are prominent and particularly good. Mr. Butler's collection embraces a wide selection, and like every connoisseur he is incessantly seeking rarities and adding one gem after another to his treasures.

It would be an endless task to name all the ferns that are worthy of a place in a fernery, but as a nucleus of a collection the following are commendable. Allosorus crispus (the parsley fern), Asplenium Adiantum-nigrum (the black maidenhair spleenwort), Athyrium Filix-fœmina (the lady fern), in many beautifully crested varieties. Cystopteris fragilis (the brittle bladder fern), Lastreas in great variety, and Polypodiums of various kinds. Polystichum angulare must be afforded a prominent position, and effort should be made to obtain some of the finer varieties, such as P. a. parvissimum, P. a. divisilobum vars. and P. a. proliferum densum. P. Lonchitis (the holly fern) is a strong growing and effective plant, and the Osmundas (royal fern) must surely not be overlooked.

In Scolopendriums (hart's tongues) alone a wonderful range of variety and handsome form exists. S. vulgare crispum robustum, S. v. ramo-cristatum majus, and S. v. ramo-marginatum and many others, including those with yellow variegation of fronds being highly prized.

It would be unwise and destructive of the fullest enjoyment to attempt fully to stock a fernery in one initial effort. It is essentially a thing that should start from small beginnings, growing gradually as one's acquaintance with ferns and their individual characteristics improves, for this intimacy and keen delight in every occupant of the fernery is sustained and the hobby becomes a source of abiding joy as the fernery becomes an inseparable part of the home of which every garden should be an integral feature.

A. J. MACSELF.

A CHOICE COLLECTION OF HARDY FERNS IN A TOWN GARDEN.

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THE HERB GARDEN

IN THE FOLLOWING ARTICLE ARE DESCRIBED MANY SWEET HERBS WHICH WILL BE FOUND TO GIVE FINE EFFECTS BOTH IN THE MASS AND AS INDIVIDUAL PLANTS.

THE ideal herb garden should be exposed in the main to full sun, but in it there ought to be some semi-shady nooks to suit certain plants, and if there be a little water —a streamlet or a small pond—for the benefit of such things as the moisture-loving mints, so much the better. The garden may or may not be sunk, but if possible it should be enclosed either by hedges of rosemary and lavender or by low walls, in the crannies of which thymes, valerian and house-leek may find a footing. Strictly speaking, of course, the two latter do not come within the category of herbs, but consistency may easily become a vice in gardening, and unless the plot be a very tiny one a certain number of "simples," that is to say, plants which have, or were thought to have in the past, a medicinal value may well be included.

How the space within the hedges or walls is laid out must depend on its size and, naturally, to a considerable extent on the taste of the owner; but, as a general rule, there should be a fairly wide border immediately within the boundary, with beds, neither very small nor very fanciful in shape, in the centre surrounding, perhaps, a bird bath—these are getting rather hackneyed, however—a good lead figure or a fountain and basin. Box makes the neatest "live" edging, but the hay-scented woodruff, which, according to the old writers "made the heart merrie" when put into wine, has a delightful effect when its snowy flowers are in bloom, while for a broad border nothing is more attractive than the soft grey-purple of Nepeta Mussini. Wooden rails painted green or brown, or treated with some rot-proof solution, make a neat, if rather expensive, edging, or small-sized rockery stones may be used.

We now arrive at the important question of stocking the garden. Here, again, dimensions and personal preference must be essential factors, but if space is limited it is well to relegate such things as fennel, chives, parsley and common sage to the kitchen garden and to eschew annuals with two or three exceptions. If there is no surrounding hedge, lavender and rosemary should be grown as bushes in the border. These must be kept well trimmed and renewed from cuttings every three or four years. Rosemary, by the way, "flourisheth best where the mistress is master," according to an old saying. The border, too, will be the best place for such things as santolina or cotton lavender, one of the "strewing herbs" of the old gaol-fever days, and artemisia, otherwise southernwood, lad's love or old man, beloved by countryfolk for Sunday posies and once held in repute as a moth preventive. The ashes of its branches, moreover, made into a paste were considered excellent for the encouragement of the budding moustache. The grey-greens of lavender, rosemary, santolina and southernwood will contrast delightfully with the rich yellow flowers like miniature suns in splendour of elecampane, the candied roots of which are said to be good for coughs. Elecampane is a strong grower and needs plenty of elbow room, as does the scarcely less showy tansy, the golden trusses of which are admirable for cutting, although the herb garden is scarcely expected to supply flowers for the house! In former times the leaves of tansy were used as a flavouring for Easter cakes and puddings, representing the bitter herbs eaten with the Paschal lamb, the puddings being made of breadcrumbs, eggs, cream, sugar and spice mixed—rather nastily one would think—with the juice of the tansy leaves. Butter-milk in which tansy had been steeped was held to be excellent for the complexion by our foremothers and, according to Gerarde, the leaves preserved in honey were "good against the gout." Another yellow-blossomed plant which takes up a good deal of space is mullein, whose big, woolly grey leaves used to be infused in milk to make a drink for consumptive persons.

Of plants equally suitable for beds or border one of the most beautiful in colour is undoubtedly the turquoise blue chicory, although its habit of growth is not pretty. Alkanet or Spanish bugloss, which, according to Culpepper, will cure nearly all the ailments under the sun, is a deeper blue and both harmonise pleasantly with the metallic tones of eryngium, or sea holly, the candied roots whereof are, or were, the basis of Colchester rock, and with the soft pink of mallow. In France the funny little, flat, round seeds of the latter are made into lozenges, but in England they seem to have no other use than to be strung into necklaces by children. Salvia Sclarea, one of the annuals which may be advisedly permitted in the garden, has flowers and bracts of pinky mauve and is very effective in a mass. Its common name, clary or clear-eye, indicates its medicinal use, and it is said that in the dark ages of cookery its stalks were boiled as a vegetable. Pot marigold is another annual which deserves admission if only for the sake of its gay colour and cleanly pungent smell. Its leaves, however, are quite a nice addition to a salad, and in the past the petals were added to broth.

If there is no wall for it, valerian—the dark red variety—must be grown in beds or border in full sun. It is still used in medicine and is beloved of cats, although it suffers less from the violence of their affection than cat-mint, which, unlike the rest of its kind, likes a sunny position. The old rhyme says:

If you set it the cats will get it,
If you sow it, the cats won't know it,

but this is mostly underrating feline intelligence, and as a rule any plant of this mint, whether "sown" or "set," will speedily become the centre of radiating lines of cat tracks and be rolled, rubbed and "nosed"—I do not think it is actually eaten—out of existence in a very short time. Cat-mint tea used to be drunk as a tonic in England and its use lingered later in America. The rest of the mints must have the dampest place in the garden. There are nearly a dozen varieties which may be grown, and all are more or less desirable except perhaps the white woolly mint, which is an ugly, coarse thing that will smother everything within its reach if allowed.

Two of the sweetest and most indispensable herbs are balm and bergamot. The leaves of balm, infused, have the reputation of curing a cold, and dried they are certainly delightful in a sweet-bag, to use the old name for our modern sachet. The flowers of balm are inconspicuous, and it has the drawback of being a persistent encroacher. The splendid crimson flowers of bergamot are, on the other hand, very good to look upon, and it is seldom an unduly rampant grower. It is beloved of bees—its common name is bee-balm—and its delicious fragrance is well known. The oil used in the manufacture of the famous perfume, however, is not extracted from the herb but from the rind of a citron, Citrus Bergamia, grown in Italy, which has a similar odour.

The scent of horehound, celebrated for its cough-curing properties, is distinctly disagreeable, and Spenser's description of rue as "rank-smelling" is only too fully justified, but the delicate beauty of the blue-green foliage of the latter goes far to compensate for this defect, and it has many useful attributes. It was another of the strewing herbs. It has tonic properties, its smell is said to keep off objectionable insects, and its leaves pounded with butter and made into pills form a poultry medicine much relied on by old-fashioned hen-wives. Another herb which appeals more to the eye than the nose is the greater celandine. Its double form is handsomer than the single, and the thick orange-coloured juice is equally efficacious as a cure for warts—this is a true saying—in both varieties. Celandine seeds itself very freely and is apt to become a nuisance if not closely watched. Sweet Cicely, Myrrhis odorata, is another plant given to lavish seeding, but one can do with a big patch of its graceful fern-like leaves and umbels of snowy flowers.

If the beds are edged with rough stones, the thymes will be as happy there as in the crevices of a wall. The silver, golden, crimson and variegated kinds should all be grown, as well as the common lemon thyme. Thyme has other uses besides that of flavouring veal stuffing. It is often one of the many ingredients in the herb tea made by villagers as a spring medicine, and its oil, formerly regarded as a specific for toothache, is still employed in various medical preparations, although much of the commercial "oil of thyme" is in reality extracted from marjoram, one of our most valuable kitchen herbs.

Space will not permit anything approaching a comprehensive list of what may be grown in a garden of herbs and simples to be given here. It is only possible to say that besides

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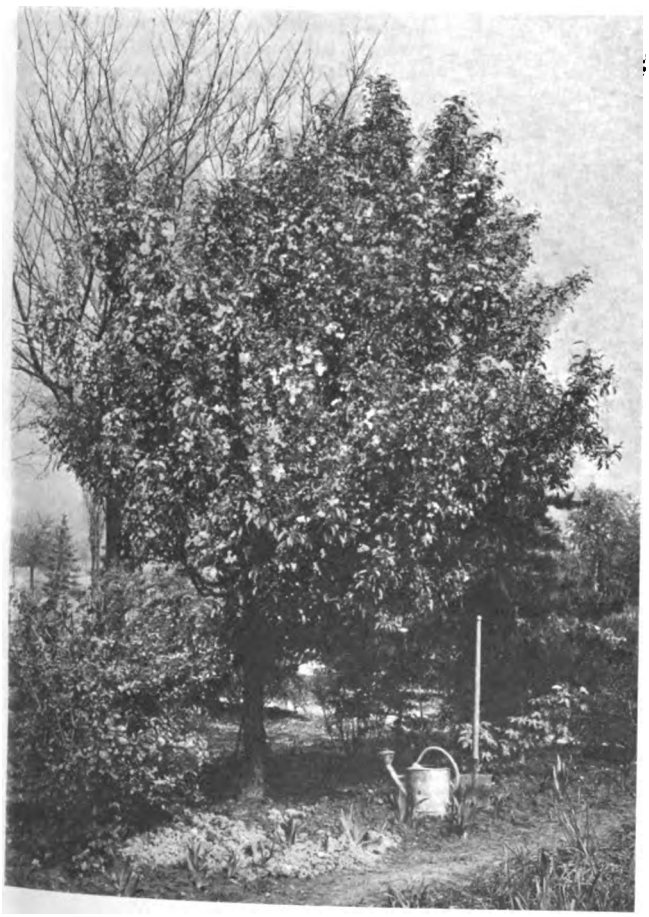
the plants named in this article room should certainly be found for wormwood—known to fame as the basis of absinthe—tarragon (not hardy everywhere), St. John's Wort, hyssop, "fresh costmary and healthful camomile," pennyroyal (which will nestle among the stones) and true saffron, Crocus sativus, still used although far less than for both flavouring and colouring; while if more annuals are admitted, they should include anise, carraway, coriander and dill.

K. E. HEAD.

PLANTS NEW AND NOTEWORTHY

THE "tea" apple tree is a Chinese introduction of Mr. Wilson's, who consumed the tea made from its leaves while in the wilds of China. The tea made of the leaves of Malus theifera is not of such a high quality as the best Indian tea, but can, perhaps, be used as a substitute in case of emergency.

The tree, as the accompanying illustration shows, is, when grown in a European climate, a rather strong grower and can attain a height of 12ft. to 15ft. Two points make it an interesting addition to existing decorative trees. First,



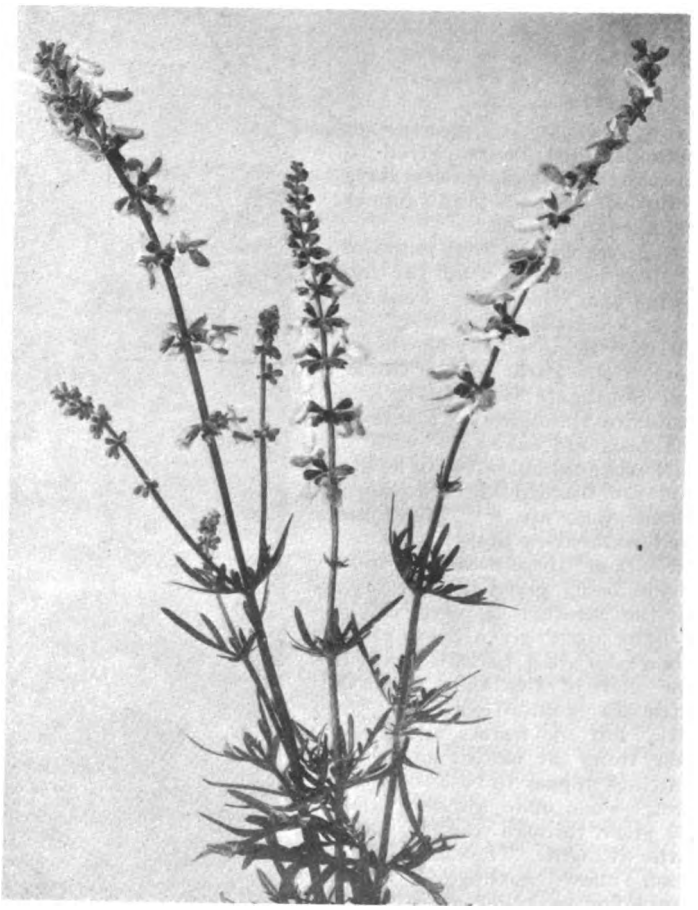
THE "TEA" APPLE TREE FROM CHINA, MALUS THEIFERA.

the flourish that is always at its best in May, the flowers look like those of a prunus, large, of a lovely white colour slightly suffused with pink and very freely produced. These flowers possess the peculiarity of being fragrant, which is rare in apple blossom. Then the fruits are very attractive in autumn. They are of the size of a large pea, borne at the end of long pedicels, much in the way of those of Malus baccata, a related species. They are bright red in the case of the tree here figured —introduced under the number 1129 of Wilson—but sometimes yellow or orange in the case of trees introduced under other numbers. They remain on the tree from August, when they begin to take colour, until October and November.

The tree is readily propagated by seeds, or, if one wants to gain time, by budding or grafting on any ordinary apple tree stock. Its culture is very easy as it grows in any soil and position, provided it gets a fair share of sun. It is perfectly hardy and requires no special care. Perhaps not a very strong grower at first, it soon makes a head once it feels at home. The habit, in all cases, is rather stiff and compact.

Salvia Jurisici is a plant from the Balkans described some years ago by Dr. Kosanin, of Belgrade University. It grows in the plain of Ovce Polge, between the towns of Koumanowo and Stip, in northern Macedonia, in association with Adonis flammea, Onopordon illyricum, Inula Oculus-Christi, Peganum harmala, etc.

In cultivation the plant has proved most attractive for the rock garden, grown either as an annual or as a perennial. In the rock garden of Messrs. Ph. de Vilmorin, at Verrières, for



A MOST ATTRACTIVE ANNUAL FOR THE ROCK GARDEN SALVIA JURISICI.

instance, where it was grown from seeds received from Dr. Kosanin, it was a lovely picture both this year and last year in the late summer. It reaches a height of 1ft. to 1ft. 6ins., and bears a profusion of violet blue flowers, slightly varying in shades. The flowering period is long, owing to the fact that side shoots are produced that keep on sending up new flower spikes.

A characteristic of Salvia Jurisici is the quantity of hairs on all its parts. The hairs are close, very thin and long, the stems square and the leaves sessile, formed of nine lobes, the terminal one distinctly more developed. Flowers are verticillate, their lower lip conspicuously keeled and most villose, measuring about one third of an inch in length; the upper, less developed, trilobate, villose only outside.

The propagation of the plant is very easy, as seeds are freely produced. These seeds, sown in March, give a beautiful show the same season, in August and September, precisely at a time when the rock garden is rather poor in flowers. When grown as a perennial, the plant will flower somewhat earlier and is best in a well drained and warm position.

C. L.

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THE RAISING OF BEDDING PLANTS

AN ARTICLE BY AN EXPERIENCED AUTHORITY ON THE GENERAL ROUTINE TO BE FOLLOWED THROUGHOUT THE YEAR IN ORDER TO RAISE BEDDING PLANTS SUCCESSFULLY.

MUCH has been written in various books on the above subject by men of wide gardening experience, but as no two persons employ the same methods, perhaps my system would be a help to some, and draw from others a helpful criticism. One often reads articles in weekly gardening papers from a southern grower, but the information is seldom of much use to anyone north of the Trent, therefore I thought my experience for the past five seasons might be helpful for the northern counties.

To begin with, our glass at Levens Hall—of which the mere mention of the name conjures up visions of topiary work—is not structurally adapted for raising bedding plants, so that unorthodox methods must be employed to raise the 30,000 plants necessary to furnish the beds for a summer and autumn display.

August sees the first batch of cuttings being taken for the following year's blooming. Pentstemons I usually take first, the varieties being chiefly Newberry Gem, Balls Park, George Home, and Southgate Gem. The side shoots of the flowering plants in the beds are taken off with a heel when about 4ins. in length and are dibbled in cold frames about 3ins. apart. These are well watered in and kept close for about three weeks, a light shade being given if necessary. If the weather is very bright a light spray given every afternoon is of great benefit. About the end of the third week a little air is admitted during the day, but the frames are closed last thing at night, until the cuttings appear to be "on their feet," when more air can safely be given through the day and a little at night. The cuttings will soon show by flagging if too much air is being given, or if they can stand without shading. I believe in keeping the frames closed and shaded until there is no fear of a cutting flagging, for once that occurs the cuttings will take weeks longer to root so that a lot of valuable time will be lost. On the other hand, as soon as the cuttings are able to stand having the lights pulled right back during the day, the better they will be for that treatment, as it is fatal to coddle cuttings which have to spend the winter in cold frames. Ivy geraniums are ready about the end of August, and these are struck in boxes placed in the next row of cold frames to the pentstemons, and receive the same treatment for the first four or five weeks, after which they are placed on shelves in a cool greenhouse and are kept fairly dry at the roots after September. My favourite variety is Chas. Turner, but I grow a few of Mrs. Hawley and Sir Percy Blakeney. A batch of heliotrope is put in towards the end of the month, but these are struck in boxes which are placed in heated pits. I usually find room for them in a frame which has grown a crop of cucumbers, placing the boxes on the old hot-bed. A good watering in, slight shade, and a spray over every day is all they require for the first month, when they are ready for potting up in sixties. They are then returned to the pits for a fortnight and afterwards brought into the little melon house, which is usually just finishing its second crop. That brings us now to about the middle of October and our first taste of frost. Begonias, dahlias, Lobelia cardinalis and Salvia patens are lifted from the beds and brought into the sheds to be dealt with. The begonia bulbs are rubbed over to clear as much soil off them as possible and are then laid thinly on the floor and on the border in the vinery to dry. As soon as they are perfectly dry they are stored in deep boxes with plenty of dry sawdust, and put in a frost-proof loft for the winter. Dahlias are lifted and laid under the solid staging in the carnation house, where they usually winter very well. Lobelia cardinalis is boxed up as lifted, a little old potting soil being worked among the clumps. They go into frames which have a single flow and return pipe running through as they keep better if on the dry side. It is nearly impossible to keep things on the dry side in cold frames during the winter months in this part of the world, so I find it best to make use of the heated frames. Lobelia cardinalis, unless kept fairly dry in the winter, makes very thin growth in the spring, and never grows into good plants in summer. Salvia patens I treat on similar lines. During November and December there is very little actual work among bedding material but a lot can be done in preparation for the turn of the year. Boxes are all overhauled on wet days by the outside staff; all pots washed and put into their proper sizes; loam, leaf-mould and sand stored under cover. The houses are all well washed down and given a coat of paint, and cracked and broken glass made good. The frames are also looked over and repaired so that, as far as possible, everything is ready for the spring.

FINE SPECIMENS OF THE DOUBLE WHITE ANNUAL LARKSPUR.

January is the time to sow for the first batch of seeds, and a start is made with antirrhinums. I usually grow about twenty varieties of tall, intermediate and dwarf types. The chief varieties in the tall section are Harmony, Salmon Rose, Orange King, Vermilion Brilliant and Yellow. Intermediates: Bronze King, Empress, Queen of Bedders and Sunset; and Yellow Prince for a dwarf. About January 14th I sow one box each of the tall and intermediate varieties in seed boxes about 4ins. deep. I always use new loam, with plenty of good leaf-mould and lime rubble, just covering the seed with a sprinkling of fine sand. Towards the end of last year the boxes were made up with soil which should be watered with boiling water about an hour before sowing. After the seed is sown, the boxes are stood on the evaporating troughs in the vinery. The boxes are covered with glass and shaded with paper. As soon as the seedlings appear, the glass and paper are removed and when they are large enough to handle they are pricked off into boxes filled with loam, leaf mould and lime rubble, with a sprinkling of bone-meal to each box. They remain in the vinery until they are about 4ins. high, and are then transferred into the heated frames, and the boxes raised on staging, so that the plants are about 6ins. from the glass. This moving usually takes place about the end of February or beginning of March. At first they are kept close and sprayed over every morning with luke-warm water. A week of this treatment is usually sufficient to get them over the slight check of removal from the vinery.

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A little air is given after the first week in frames, increasing this until, by the end of March, they are ready for cold frames. Very little air is given at first, but in about a week they can stand plenty of air by day and a little all night. Early in April the boxes are removed from the cold frames and stood along the paths in the garden, but frame lights stood on pots are used to protect them at night for about a week or ten days. The end of the month the beds are all raked over and made ready for planting which usually takes place early in May if the conditions are suitable.

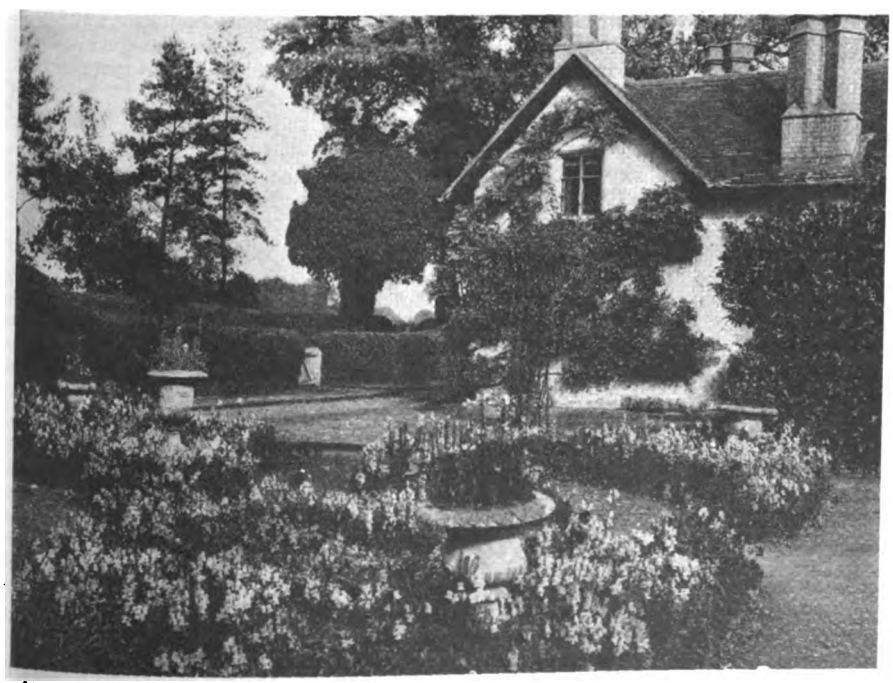
A week or ten days after the first batch is sown I make a further sowing of tall, intermediate and also the dwarf Yellow Prince. These are sown in boxes about 5ins. deep, as they sometimes come along a few days earlier than I can handle them, but they take no harm if the boxes contain plenty of good soil. This second batch is usually pricked off into cold frames about the end of March, so in order to make room for them I lift all the pentstemons with a trowel and have them laid in thinly on a warm border. They seem to like the change for they grow into nice sturdy plants and are ready for the beds early in April.

After the pentstemons are removed, the soil in the frames is forked over and given a covering of sand, and the second batch of antirrhinums is pricked off about 3ins. apart each way. At first they are kept close, but are gradually hardened off until, by the middle of May, the lights are left off day and night, and the end of the first week in June sees them planted out in the beds. During the past five seasons I have noticed the plants out of boxes do far better than out of frames. I may mention that at no stage of their growth are they stopped in order to make them bushy, as they are well furnished with bottom growth at planting time, and early in July the centre spike is showing colour. In a favourable season most of the centre spikes are used for house decorations and the side shoots then soon rush into a full blaze of colour. Another advantage in blooming the plants early is that one is able to detect the rogues and if these are pulled out, the remainder have a good chance of filling out, so that when the plants are in full bloom one is assured of having a bed true to colour. Many varieties are easily rogued in the seed boxes or when pricking out, and again at planting-out time.

MIGNON DAHLIAS, WHICH ARE SOMEWHAT UNUSUAL BEDDING PLANTS.

Two boxes of ageratums are sown along with the first batch of antirrhinums. These are also sown in fairly deep boxes and placed on the pipes in the vinery. Not until the leaves touch each other after being pricked off 3ins. apart in boxes of leaf-mould and sand, do they come out of the vinery and then only into a greenhouse with a night temperature of about 5° lower. When removed to the heated frames they are given the warmest end and stay there until the middle of May with a little air on all day, and are then transferred to cold frames, as the sun usually has sufficient power to keep them warm at night if the frames are well exposed to the sun and not too much air left at night. About June 20th they are planted out in beds, but a week previous to this they are left day and night without lights in some sheltered corner. Fibrous rooted begonias are sown about the third week in January, in pans containing leaf-mould and sand. As soon as the seedlings are large enough to handle they are pricked off into shallow boxes containing leaf-mould and sand in equal parts with just a little well dried cow manure rubbed through a fine riddle. They are then gradually hardened off ready for planting out time. Delphinium Azure Fairy and Blue Butterfly are sown about January 21st in boxes which are placed in the vinery. I find they make better plants if potted in sixties instead of being pricked off into boxes.

Salvia splendens is sown about the same time, putting the seed pans into a little forcing house, and as soon as germination takes place, the seedlings are kept going with plenty of heat and moisture. As soon as possible they are potted into "thimbles," and afterwards into sixties. When the pots are filled with roots they are fed with liquid manure and about the end of April are moved into forty-eights. By this time the cuttings of ivy geraniums, fuchsias and heliotropes are ready for potting up, and are stood pot thick in the heated frames for a time. The ivy geraniums and fuchsias are planted out in forty-eights, but I usually pot the heliotropes into thirty-twos. They make fine plants and are in flower by the time it is safe to bed them out. The boxes containing stools of Salvia patens are brought into the vinery to encourage growth early in January. The growth



FINE BEDS OF ANTIRRHINUMS FROM SEED SOWN IN JANUARY.

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is taken off as cuttings, with or without a heel, and dibbled into boxes. A piece of glass, with a sheet of paper for shade, is put on top of the box. Although I was always taught that glass over cuttings should be dried at least once a day I never touch the glass over my salvia cuttings for a week, and have no difficulty in securing a 95 per cent. strike. Cuttings of Salvia patens may be put in up to the first week in March.

Blue larkspur, annual scabious, salpiglossis and nigella, are sown towards the end of February. In about three weeks they are ready for pricking off into boxes and are then moved into heated frames. Lobelia Blue Stone is sown about this time, but as the seed is so very small, it is sown on top of fine sand, care being taken to see that the pans are well soaked previous to sowing. Anagallis, alonsoa and another lot of lobelia are sown about a fortnight later. Early in March Lobelia cardinalis begins to claim attention. The boxes are given a good watering to encourage the lobelia to make good growth. Towards the end of the month the clumps are taken out of the boxes, and all the strongest shoots cut off with a knife, taking care to leave a bit of root to each shoot. They are planted out into a cold frame which has previously been enriched with well rotted manure. I have only tried three varieties here, Firefly, Lord Ardilaun and Queen Victoria. The last named is by far the best in colour and size of foliage and length of flower spike. Early in March the begonias are showing signs of growth and it is as well to have them laid out thinly in a frost-proof shed or a cool, dry greenhouse, as the little shoots are very easily broken off if they are handled much by having to turn them out of boxes of sawdust. Early in April is soon enough to put them out into frames. The bulbs may be laid on about 3ins. of rough leaves and just sprinkled over with leaf-mould. This treatment is good enough for Begonia Caltonii and Worthiana, but the dwarfer Dr. Deliuel, Evelyn Tavenent, Le Flamboyant, M. Essyer and President Savoy are best grown on in small boxes on the staging in a warm vinery. I am afraid space will not allow of much more on the subject from me, but I have tried to give as near as I can the dates for sowing various plants for bedding as carried out at Levens. Bedding plants appreciate good culture, and the best one can do for them is not too good if one wants a blaze of colour during the summer. F. C. KING.

BOOKS ABOUT PLANTS.—III

DEALING WITH GROUPS, FAMILIES OR GENERA.

I NOW come to a slightly more advanced stage, to books which deal with some specific plant or group of plants. It may be imagined that these books are meant for specialists, but every keen gardener, even though he be only a beginner, is a specialist in embryo. It is impossible to like all plants equally, and sooner or later his judgment will crystalise and his preferences will appear along certain fixed lines. It is then that these books on individual plants are so useful. I should mention here that before the war there was a series of small volumes on individual plants called the "Present Day Gardening Series." These are practically all out of print, so they are not mentioned individually.

I will try to give a selection of books on a few subjects:

CONIFERS.—"A Handbook of Conifers" by Messrs. Dallimore and Jackson, published by Edwin Arnold. A new book and the most concise and complete that has yet appeared. It contains every conifer, whether it is in cultivation or not. There is an American book, published by Macmillans, called "The Cultivated Evergreens," which also includes broad-leaved evergreens, but mostly consists of conifers. For those who are restricted to dwarf varieties there is a volume specially devoted to them called "Dwarf and Slow-growing Conifers," by J. Murray Hornibrook, and issued by *Country Life*.

RHODODENDRONS.—The two great books on this most popular genus are "Rhododendrons and Their Various Hybrids," first and second series, by J. G. Millais, and published by Longmans Green. They are very complete, but are rather large and so expensive. For those who wish a smaller volume, there is "Rhododendrons for Amateurs," published by *Country Life*.

PRIMULAS.—The most valuable contribution to this genus is the report of the Primula Conference held in 1913 and published in the Journal of the Royal Horticultural Society for 1914. A more localised book is "European Primulas," by J. Macwatt, published by *Country Life*.

SAXIFRAGES.—For rock garden enthusiasts Messrs. Irving and Malby's book on "Saxifrages or Rockfoils" is a necessity. It is published by Headley Brothers and is most complete in its information.

IRISES.—For this most important genus there are two books, both by W. R. Dykes, which say all that there is to be said about irises. He has made a life study of them and his knowledge is world wide. The large, folio volume, called the "Genus Iris," published by the Cambridge University Press, is really a work for the specialist as a large portion of it is botanical; for the amateur I should suggest "The Handbook of Garden Irises," published last year by Martin Hopkinson, which gives all the information that anybody outside the ultra-specialist can require.

ROSES.—First and foremost comes Miss Willmott's famous work on the "Genus Rosa," in two large quarto volumes, which is now published by Wheldon and Wesley. This is a magnificent book and is illustrated by Alfred Parsons, R.A. Probably the most important book on the rose for the amateur is "Roses: Their History, Development and Cultivation," by the Rev. J. H. Pemberton, Vice-President of the National Rose Society. This is a very useful book and fulfils all the requirements of the amateur. Another useful little book is "All About the Rose in Simple Language," by Sir J. L. Cotton, Bt., published last year by Andrew Melrose, Limited; while yet another is "Roses and How to Excel with Them," by R. V. Giffard Woolley, a *Country Life* Publication.

LILIES.—Although these flowers are so popular this is a between-season for books on the subject, for Mr. Grove's first book is out of print, as is Mr. Elwes's big monograph on the lilies. There are, however, two new works in course of preparation, which, I believe, are to be announced shortly.

BULBS.—There are two new books on the subject, one by the Rev. J. Jacob, "Hardy Bulbs for Amateurs," published by *Country Life*, an exceedingly useful book which includes notes on all bulbs which are usually grown, with lists of selections. The other, "A Handbook of Crocus and Colchicum for Gardeners" is by E. A. Bowles, and published by Martin Hopkinson. This is a most complete work and is invaluable for all gardeners who are interested in these two genera.

CARNATIONS.—"Perpetual Carnations," by L. J. Cook and published by *Country Life*, should supply all the information necessary for the amateur.

CHRYSANTHEMUMS.—"The Culture of Chrysanthemums," by W. Wells, another *Country Life* book, is very useful for their successful treatment.

DAHLIAS AND PEONIES.—For these we have to go to the United States. "The Amateur's Book of the Dahlia," by Miss C. H. Stout, is published in this country by Heinemanns, and is an admirable book, while "Peonies in the Little Garden," by Mrs. Edward Harding, and published by the Atlantic Monthly Press of Boston, supplies all the information necessary for their raising.

TOWN GARDENING.—This is a subject which is not well supplied with literature. For actual planning of public gardens we have to go to an American book which is called "Landscape Gardening," by O. C. Simonds, and is published by Macmillan. In this are several chapters which are useful to town architects. There is a volume called "Town Gardening," by Mary Hampden, one of Thornton Butterworth's "Home Garden" books, which is only partially successful; but this is a difficult subject and requires long experience. There is, however, a most excellent book on trees in towns, called "London Trees," by A. D. Webster, published by the Swarthmere Press, which is full of information of the greatest use to all town planners. M. C. E.

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CORRESPONDENCE

DESTRUCTION OF SNAILS AND SLUGS.

SIR,—I should be extremely obliged to your correspondent, A. D. Richardson, if he would give fuller particulars of his experience of the use of powdered alum for the destruction of slugs. Does powdered alum remain effective after rain if broadcasted (after the style of dusting soot or lime, the old-fashioned way), or has it to be renewed after every shower? Would the price be prohibitive in dressing a two acre kitchen garden? Your correspondent advises making a strong solution by dissolving a lump of alum in boiling water and saturating refuse heaps. How much alum to, say, ten gallons of water would make a strong solution? Last season I tried soot, lime, Vaporite, Terafumite and Bentley's Slug Destroyer, with very little success, but was fairly successful with a home-made wash sprayed on seedlings outside every third evening. The wash was made up as follows: 1 gill Spidacide, 1 pint quassia extract (double strength), 1 handful of soft soap, 1 handful of yellow sulphur and 3 gallons of warm water.

I came to the conclusion hand-picking was the most effective way of dealing with the pests. With a strong darning needle and a tin with a little Vaporite in the bottom, six "hands" and myself could average 800 slugs an hour *each*, and putting in three hours a day managed to account for 15,000 a day in the kitchen garden alone. We kept it up for over a fortnight, but still the slugs appeared as numerous. Nothing came amiss, for after all weed seedlings had been consumed in addition to the usual vegetables, such as lettuce, cabbage, cauliflowers, broad beans, peas, parsnips, beet, carrots, onions, leeks and celery, hundreds of slugs could be seen crawling up the pea sticks and gooseberry bushes, and feeding on the green leaves of the latter. The same damage was done among annual flowers and herbaceous stuff. I should be pleased to give powdered alum a trial, but I think I shall try ducks. It would be interesting to have the opinion of readers of THE GARDEN on this question.—F. C. KING.

SEED POTATOES.

SIR,—An interesting contribution by "Clydesdale" on page 28 calls for a few special comments. It is not many years since those who possessed even adequate garden space invariably neglected planting anything but the earliest potatoes, being content to rely in the main upon farm produce for the bulk of their supplies. Nevertheless, the conditions of things as we find them to-day, notably, high prices, disease, national security against new methods of warfare, not to mention the desirability of rotation in cropping, demand that bigger areas be allotted for the culture of the humble potato. "Clydesdale" over and over again makes use of the term "small" when advocating the selection of seed, but it is not always easy to convey to others even an approximate conception of what is really implied by the use of such a term, far better give it in avoirdupois. I find a tuber of 1½oz. to 2oz. best calculated to obtain desired results, and yet in the selection of my "seed" I would never think of either *limiting myself to this size or even picking them indiscriminately*, because, how is one to tell when they are all mixed in a heap whether one is retaining for next season's planting tubers from a poor root calculated to give a poor return or a typical eightyfold? Just as careful gardeners scrutinise at the season of flowering their strawberry plantations for any blind plants, and there and then grub them up and consign them to the flames so as to avoid any possibility of future stocks becoming barren, so, when potatoes are being lifted, then is the time to select, and only from roots which are above the average both in weight, shape and condition. It must be apparent that under this method of culture best results are attained. This cannot be easily accomplished on farms where potatoes are grown for profit, but there is no reason why this specially selected systematical collection should not be carried out by the private owner of a garden. Last year I planted Scottish seed on land which has been meadow over fifty years, yet, in spite of attacks from wireworms, no one could wish for any better edible potato.—E. E. P.

LACHENALIAS.

SIR,—Lachenalias are among the easiest of bulbous plants to grow. They require no artificial heat whatever. To be kept close to the glass in an unheated greenhouse, from which frost is excluded, is all they require to be grown to perfection. Pendula, a delightful red-coloured Christmas flowerer is the earliest

LACHENALIA PENDULA, THE BLOOMS IN THIS SPECIMEN APPEARED IN NOVEMBER.

of all the species and varieties to bloom. Glaucina closes the season in April. This last is very sweet and is reminiscent of the old-fashioned red cytisus. There are now a large number of hybrids which carry on between these. The public is greatly indebted to the Rev. J. Jacob for his additions to this beautiful group, by such varieties, to mention only a few, as Siam, Monte Carlo, Pega, Rutland, Leiden, etc., also for several unnamed varieties which are to be brought before the public in the near future, some of which promise to eclipse even the best of those now in commerce.—W. MAUGER.

RHODODENDRON NOBLEANUM.

SIR,—If I had referred to Mr. Bean's "Trees and Shrubs," ii, 370, before writing the note about this valuable hybrid in THE GARDEN of the 10th inst., I should have avoided the error of attributing its origin to Messrs. Standish and Noble of the Sunningdale Nursery. The name "Noble" seems to have misled others besides myself, for the error appears in some quite recent books. The truth is that the original cross (which has been frequently repeated elsewhere) between R. caucasicum and R. arboreum was first made by Michael Waterer of Knaphill in 1832. A certain Mr. Noble was so much impressed by the beauty of the first blossoms that Michael named it after him.—HERBERT MAXWELL, *Monreith*.

LABELS AND LABELLING.

SIR,—Some time ago there was a discussion about labelling in THE GARDEN. It would be a great advantage to buyers if nurserymen supplied their plants—especially trees and shrubs—with more or less permanent labels attached to them. The only firm that does this, so far as my experience goes, is a Portuguese one. This nursery uses small, pliable zinc tie-on labels with the name written or stamped thereon in indelible ink. The extra cost of using such labels must be a very small one, while the advantages to the buyer are very considerable. Given all things equal I would personally always deal with a firm that saved me the trouble and anxiety of having immediately to re-label the plant.—COLLINGWOOD INGRAM, *Kent*.

METROSIDEROS IN BRITISH GARDENS.

SIR,—In Mr Haddon's most interesting article on New Zealand plants in THE GARDEN of January 3rd, the statement is made that "great trees of Metrosideros tomentosa and M. robusta ablaze with scarlet blossoms must be a marvellous sight, but M. lucida is the only species likely to succeed at all in most gardens." I should be very interested to know whether this is confirmed by the experience of others who have tried to grow this magnificent family in Cornish or Irish gardens. Here in Cormwall I have come to suppose that M. robusta is an easier plant to grow than M. lucida, although lucida, the Southern Rata, comes from a colder climate and might therefore be expected to be the hardier of the two. With me robusta stands the full blast of the Atlantic gales unhurt, in a position where no other evergreen except Blue Gem veronica, Escallonia macrantha and a few other plants such as Pittosporum crassifolium will survive. It does the same even on the most exposed headlands in the Scillies and thrives on St. Michael's Mount. I believe it does equally well in a good many Irish gardens. But M. lucida is less often a success. I only know of one really fine specimen about here, the one figured in the Rev. A. Boscawen's article in the R.H.S. Journal last January. Here it evidently has need of a more sheltered spot than it has had, and a much more sheltered one than robusta. I think I am right in saying that it is not a success in the Scillies at present.

I write this in the hope that others may be encouraged to try M. robusta, for it is certainly one of the noblest of all flowering trees. As for M. tomentosa, I do not know of anywhere where it is yet established and a success on the mainland, though it thrives amazingly in the Scillies; the best chance, evidently, is to grow it on with winter protection until it is large and has made hard wood and mature leaves, for the young leaves are very sensitive to frost. The plant will stand any amount of wind here as on its native headlands, and it will grow in the barest minimum of soil. I have seen seedlings of it on the face of a rock or in chinks of a wall where one would have supposed nothing but pennywort could survive. When it comes to the end of the food available in one chink, it sends out long red trails of root in search of more food in another chink. So, among various ways in which I am trying it, I have planted it in very stony soil, and also plastered it on to a steep rock face that is curtained with moss and weeds.

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M. diffusa, the creeping species, must surely be, what Dr. Cockayne calls it, one of the treasures of the New Zealand flora. I know few more delightful plants. In its own country, I believe, it stands full exposure to the sun, but here it seems unable to survive except in permanent shade. Its immature leaves, very sensitive to frost, make a lovely pattern up a tree trunk or a mossy rock; little round leaves like those, say, of a shrubby bog pimpernel (Anagallis tenella). The mature leaves are more like those of Eugenia Ugni, the edible myrtle. And the flowers, are umbels of rose-scarlet brushes, each brush gold-tipped.—Z.

WINTER WORK AND PLANTING

BY EDWIN BECKETT.

IT always seems to me that someone made a mistake about the official commencement of the winter season to cause it to arrive at the end of December and last until March, for the period which we designate by that name certainly appeals to one as being half over by the time Christmas arrives. It is, therefore, necessary to adjust one's perspective somewhat when considering the work that can be accomplished during the winter season. It may appear a quiet time, but, in a good garden, where the working details are always going with a swing, there is a great deal that can be accomplished during the dull days of winter, in preparation for the coming spring season of busy activities.

Probably the prime occupation is the ground preparation work by means of trenching, which should be carried out during the days of late autumn and early winter, on the lighter soils, but on the heavier grounds should be deferred until the days of later winter so as to prevent the climatic influences, notably heavy rains, from beating down the soil and forming it into a sticky, tenacious mass once again. This year it is a very important point, for the rains that we have recently experienced have been heavy enough to pack practically any trenched ground. Open dry weather periods, and especially frosty spells, arriving before the desirable trenching time, should be fully utilised for wheeling into position the manure which is to be incorporated at the time of trenching, and in speaking of these two items, I would urge the real importance of properly manuring ground, for vegetables cannot be expected to thrive in soil that is deficient in their proper foods, and another fact to be emphasised is the importance of real deep trenching: by this is meant getting well into the subsoil and bringing it up to the surface, so as to rotate the soil from period to period, affording that below the surface one year the chance of being acted upon by light and air the following one, and doing this work by trenching will afford a properly worked root run, well down, so that the plant can work to find its food—always a beneficial factor in a plant's life.

Probably the operation that calls for as careful review at this time of the year as the foregoing is the question of planting. We will consider this general question under three separate sections: Herbaceous Plants, Trees and Shrubs, and Fruit Trees. Dealing with the first group, the winter period does not affect this to so great an extent, for the aim should be to arrange for this work in the early or middle part of autumn, rearranging or replanting the borders soon after the dormant period of the plants is arrived at. Borders require replanting about every third year, and this should be thoroughly carried out, not doing it by half-measures. The plants should all be lifted and heeled in on a spare piece of ground, the border then trenched, incorporating food in the shape of spent manure, leaf-soil, etc. Do not employ rich food for the majority of plants, as this will only encourage rampant growth, with the possibility of adversely affecting flowering. Here it is necessary to add a caution as to one or two groups of plants. Peonies, hellebores (of the Christmas rose section) and iris require separate treatment, the correct time for moving these being late summer, owing to their curious rooting characteristics. If, for any reason, this replanting work was deferred at the autumn period, and it is still required to be done, then it should be held over now until the late winter period, arranging to do it then, during open weather, just prior to the plants becoming active for commencing their early spring growth.

In the tree and shrub plantations, open weather in winter is a very suitable time for effecting the planting and transplanting of all the deciduous items, but go steady about the evergreen sorts, for some of these strongly resent being shifted at inopportune times. Among the latter are such as yews, conifers, and hollies. These plants shed their foliage, though some folk seem to think that they do not, and as transference from one place to another gives their growth a greater or lesser check, then the aim should be to move them at such time as their growth is at its highest activity, and this may be considered as at the period when the plant is thrusting forth new foliage and growth. If the moving is accomplished then, any check that the plants receive which causes old foliage to be affected, is overcome by the young healthy foliage ridding the plant of its dying leaves, and, root activity also being present, the moved plant is the more likely to get over its handling and make steady progress. If this work can be carried out in showery weather, so much the better, for the overhead moisture greatly assists the plant by keeping the top growth in good moist condition, a part where it requires it even more than at the root.

Before moving trees or shrubs, have, as far as possible, holes prepared for their reception, the bottoms of which should be well broken up; but the excavation should not be too deep, for deep planting is very harmful, and a frequent cause of plants taking on a sickly appearance, and oftentimes of their dying off. Soil and manure should never be placed round the stem of a fruit tree or flowering tree such as a thorn, crab, etc., as it is a grievous and most harmful habit.

Heavy topped subjects should be supported by stout poles or stakes, to obviate the possibility of further disturbance to the roots during heavy winds, such as would be caused by the swaying of the top-burden, and even to prevent uprooting during gales.

The question of fruit trees was left to the last because, even though it may be considered a trifle late for such planting work, yet even now much can be done, and it is desirable to force home the need of first-class work in this case. It is as well to consider one's trees from the economic standpoint, and where a tree, either wall, orchard, or under glass, has proved a consistent failure under good treatment, then no mercy should be shown it, and if not young enough for the system of "crown grafting," it should be removed from its place and replaced by another that will give its yield. Planting should be done in careful manner, and if the ground is heavy and liable to waterlog, then the trees should be planted on a slight, artificially formed mound, above the surrounding level. This has been pointedly illustrated on the heavy soils during the recent flooding weather, where ground has been saturated by the heavy rains, and one has had the pleasure of seeing the trees on their mounds, standing comparatively dry, like island sites, in the midst of the surrounding water-strewn level ground. Again it should be added, "stake thoroughly," for fruit trees, above all, require this very necessary support.

There are many more items that can occupy the busy and attentive gardener during the winter period, such as the preparation of sites for hedges where required, for these, too, benefit from the prior careful preparation of the soil; the formation of new gravel walks, and the setting in of drainage where the formation of pools of water denotes that it is required, or the attention to drains that already exist if this warning sign is exhibited; and the final word is, perhaps, again necessary: to watch newly planted stuff after frosts, to make sure that the soil has not been disturbed and roots exposed thereby, and to suggest the placing in position of protective material, where convenient to do so, around such plants, before the arrival of frost, if such threatens. It is most important that the roots should not be exposed, otherwise the plants receive a severe check, which in many cases is never got over.

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SIMPLE GARDENING

DIGGING SHRUBBERIES AND HERBACEOUS BORDERS.

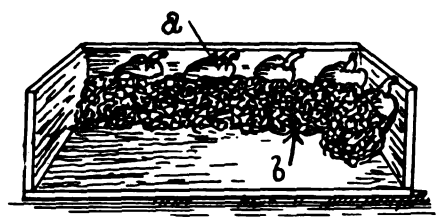
OWING to the long spell of wet weather it was not possible to deal with this work satisfactorily before Christmas. Shrubbery borders should receive attention first, now the weather is drier, especially in gardens where the soil is of a stiff, clayey nature. The owners, in these circumstances, need not worry because the digging could not be done at an earlier date, as much better results will follow if the soil is turned over now. In the case of new shrubberies where large deciduous trees do not cast their leaves so that the latter collect under the shrubs, the soil should be dug and left in a lumpy condition until the month of April. The lumps will crumble at the touch of the rake then and the border will look clean and fresh during the greater part of the summer. No digging should be done among shrubs where it would interfere with the roots of the latter. In the case of old shrubberies the actual digging should be confined to the outer edges of them, and if partly rotted tree leaves are collected round the stems of the plants they should be neatly spread out and covered with some loose soil; only a small quantity is needed to keep the leaves in position till they are rotted, then the shrubs will benefit. It can now be clearly seen how much ground the bulbs occupy in herbaceous borders and the workman can avoid doing any damage to them; also to many herbaceous plants which are pushing up new shoots. A judicious application of rotted manure would do a lot of good to the plants.

PARSNIPS AND BROAD BEANS.

Parsnip seeds are slow in germinating. They are sown at an early date, too, when the soil is cold, so due allowance should be made, and early germination cannot be expected. Of course, soils vary, dark coloured ones are warmer than light ones, but if the latter are of a sandy nature or otherwise very porous, they become warm much sooner than the dark heavy loams. The parsnip requires a long time in which to grow, and full-sized roots can only be produced by the timely sowing of seeds in soil found to be in a suitable condition at the time. No trouble will be met with on sandy soils, but there may be on heavy ones. The latter should be treated as follows: if the ground has been deeply dug or trenched the surface portion only will need preparation. Fork up the top 6ins. or so on a fine day, doing this early in the morning, about noon use the iron-toothed rake to reduce the lumps to a powdery condition and then open drills 18ins. apart and nearly 2ins. deep. Scatter some wood ashes in the drills, then drop a few seeds, about 9ins. apart, in isolated clusters, not generally along the entire drill. Scatter some old, dry soil on the seeds before finally filling the drills with some of the original soil. Rake the surface in the same direction that the drills run and do not tread on the surface more than can be avoided. The earliest broad beans result from an autumn sowing, of course, but quite early gatherings are obtained from plants raised from late winter sowings. I advise readers to try the following method. Instead of opening drills, after the ground is prepared, and sowing double lines of seeds, plant the seeds with a hand trowel 2ins. deep in single rows 18ins. apart. Every plant will grow sturdily and bear heavy crops. Sow on the level ground.

HOW TO GROW EARLY POTATOES IN WARM BORDERS.

Potatoes will be dear during the spring owing to the ravages of disease last year and the resultant scarcity. Those cultivators who possess "sets" of early varieties in sufficient numbers to permit of experiment, should make a selection of some of the most forward tubers



and place them in a box about 6ins. deep; three-parts of the tubers being buried in leaf-soil or fine soil from flower pots, such as will encourage the growth of roots quickly. The boxes may be placed in a frame or a greenhouse and the tubers sprinkled with tepid water several times each week. There should be a space of 3ins. between the tubers so that they can be lifted in due time with the soil adhering to the new roots. In the meantime, any warm border outside, such as one at the foot of a wall or fence, or one on a sloping bank facing south, should be prepared for the growing plants. It is important that the soil be made as fine as possible. When ready transfer the plants—growing sets—to the new border, planting them 2ins. deep, and provide rough litter, leaves or branches for covering if frosts come. New potatoes will be available one month earlier than in the ordinary way of growing them. Old heaps of rotting leaves and soil rubbish may be levelled and an early crop of potatoes grown on them. I have so grown them for many years. Potatoes will thrive in pure leaf-soil. At *a* the tubers are shown partly buried in soil *b*; *c* shows roots and soil, *d* haulm growing and *e* the principal runner roots. All these must be taken care of.

PLANTING IVIES.

Ivies are grown throughout the country, more generally than any other climbing plant, if we include those growing in a wild or semi-wild state. Perhaps it is because the plants are so common that they are so much neglected. In a wild garden or plantation the ivy is not trained or cultivated; in a garden it should be well treated and looked after, then the plants are objects of beauty as well as being useful. In a Lancashire garden, some years ago, various kinds of plants were tried as edgings to a long carriage drive leading under large trees growing on both sides of it. All these plants failed; then ivy was tried. I carried out the work and, in doing so, mixed old lime rubble freely with the soil. The plants were pegged down, grew satisfactorily and formed a very pleasing edging which entailed little trouble to keep in order.

The plants are useful for clothing walls, old buildings and banks, but if a careful selection be made the results may be much more pleasing than they are. In every case where the soil is deficient in lime some old mortar rubble should be added. A collection of these plants trained to stumps in some suitable recess in the garden is very interesting. Silver and golden-leaved varieties should predominate with a judicious mixing of green-leaved ones to show up all to the best advantage.

GLOXINIAS AND TUBEROUS BEGONIAS

Sometimes the old corms are kept in their flowering pots through the winter and very frequently numbers of corms rot, especially if they have been placed too near to the hot-water pipes under stages. Others are wintered in boxes and these are often the best corms at this season. It is now time to subject the corms to a gentle heat and some moisture. It is very interesting to watch the new shoots grow around the hollow cup-like surface of the old corm. Of course, there is a right way to start the new growths, and the amateur who wishes to do this should procure several shallow boxes and place a thin layer of sifted leaf-soil in the bottom of each; then press the corms gently into it and fill up the spaces between, also with leaf-soil, level with the crowns, but not burying the latter. Apply water through a rosed watering can once; more water in this form will not be needed till the corms are potted separately. Semi-darkness will not be harmful at first, but after the stage when the new shoots are 1in. long full daylight is essential at this season.

GEORGE GARNER.

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BOOK REVIEW

ONE of the most comprehensive attempts at a real biology of the flowering plants has just come into our hands. This volume is a valuable contribution to a series of interesting biologic works dealing with the various branches of natural science. The present volume is "The Biology of Flowering Plants," by Dr. MacGregor Skene, Lecturer in Plant Physiology at Aberdeen University (Sidgwick and Jackson, Limited, London, price 16s. net). Like its predecessors, it is a genuine attempt to correlate all the scientific facts, morphological and physiological, which are known at the present time regarding the flowering plants and their relation to their environmental conditions. The plant is treated as an indivisible entity, a living unit, which if divided would perish—which view is, naturally, a purely biologic one. The author, in addition, presents to the reader the more modern idea of biology—its intimate association and close linkage with the function of the organism *in toto* depending on the proper functioning of each of its component parts—that is, he approaches it from the purely physiological side. Undoubtedly it is the outward expression of the view which has been looming darkly on the botanical horizon for the last twenty years. In these days the physiologist finds himself at his zenith, having by carefully compiled and accurate experimental data deposed the old *régime* of botanists who were essentially morphologists—the men who held to the far-reaching theories of last century. But he is rather apt to forget the pioneer work carried out, often laboriously, by the older botanists, in these days of increased specialisation, when the subject has been split up into so many branches, each bristling with unforeseen and difficult corners requiring careful negotiation. The great argument against the older workers was that they had no experimental evidence by which to substantiate their theories, and consequently the age of experiment is with us now in many cases proving how entirely false these old ideas were. This may seem to lead nowhere, least of all to a criticism of this book, yet it has a bearing which will be realised by those who read it. The volume, to be a biology, is perhaps too physiological, although it is realised it is a moot point how much constitutes a sufficient amount on which to base biologic knowledge. More space might have been devoted to the study of structure and its intimate correlation with function, which is so well pointed by Haberlandt in his "Physiological Plant Anatomy," and also by Goebel. Some day we will witness the inevitable reactionary swing of the pendulum to extreme morphology, and while such a thing is to be deprecated, it is bound to happen if the picture be entirely obscured by a physiological view. The volume is valuable in so far as it tends to bring out the general trend of biology, and as such it is strongly recommended. The facts are set forth clearly and concisely with a genuine aim to show their relationships. The many scattered threads of the subject are gathered together and woven into a delightful and readable book which gives the reader a clear insight into the wide confines of botanical science. Such a volume is to be welcomed. It serves as a check to over-specialisation in any one branch. The links which bind these separate studies are clearly shown, and also how these apparently isolated facts all fit into their appointed places, rendering the story more complete as time goes on. The subject matter is treated under six heads, viz., (i) The Soil and the Absorption of Water and Salts; (ii) Assimilation and Transpiration, which leads on in natural sequence to (iii) Special Modes of Nutrition as found in Saprophytes, Parasites, and Symbiotic Relationships; (iv) Mechanical Problems; (v) an interesting chapter on Reproduction and Dispersal; (vi) Development, wherein are discussed such controversial questions as germination, conditions and mode of growth, and the vegetative and reproductive phases. One of the valued assets of the book is the very complete bibliography of all the literature to which reference has been made in the text. It is a most extensive and broad list, and shows the care and thought the author has given to the selecting of his facts and their compilation. As a work of reference the volume will prove of the greatest possible assistance, there being over 500 references to literature. Such a compilation of scientific facts entirely untrammelled from a mass of unnecessary detail is worthy of the highest praise, because it is not there without much effort, laborious toil and thought. There are numerous drawings in line throughout the pages and many of these are original and well executed. To the botanist it is recommended as worthy of a place on his shelves; while those more interested in general horticulture, although perhaps too advanced in some aspects, will find much to interest and instruct them in the author's presentation of such a wide subject. G. C. T.

Trials at Wisley.—The Royal Horticultural Society will carry out trials at Wisley this season as follows: Potatoes (second early varieties only, but including varieties suitable for salads), turnips and garden swedes, peas (early varieties only). Varieties for trial should reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey, on or before January 31st, 1925. The necessary entry forms may be obtained on application to the Director.

The Sale of Seed Potatoes.—A firm of Scottish seed potato merchants was recently convicted of an offence under the Seeds Act, 1920, in respect of the sale of a consignment of 2 tons of Sharpe's Express seed potatoes with an incorrect description of the variety. The Seeds Act, 1920, and the Seeds Regulations, 1922, require, in the case of a sale of seed potatoes, that the seller shall make a statement in writing to the purchaser at, or before, the time of sale or delivery, containing particulars as to the class, variety, size and dressing of the potatoes. The name of the variety in this connection is not taken to be incorrectly stated if it is true in respect of 97 per cent. of the total quantity sold. In the case in question the seed potatoes were estimated to have contained approximately 30 per cent. of "rogues." The defendants pleaded guilty and a fine of £5 was imposed. A pamphlet (Form No. A, 64/H.D.) containing a summary of the Wart Disease of Potatoes Order, 1923, and of the Seeds Act, 1920, and the Seeds Regulations, 1922, so far as they affect the sale of seed potatoes, may be obtained free of charge on application to the Secretary, Ministry of Agriculture and Fisheries, 10, Whitehall Place, S.W.1.

Importation of Bulbs into Switzerland.—Instances have been brought to the notice of the Ministry of Agriculture and Fisheries during the last few months, in which consignments of bulbs from this country have been delayed entry into Switzerland owing, it is stated, to the absence of a permit from the Swiss authorities. The Ministry is informed that consignments of bulbs as well as of other plants must be accompanied by the consignor's declaration and official certificate in the form prescribed in the Phylloxera Convention, and a translations of these documents into French, German or Italian must be furnished. The sworn declaration accepted by some countries as sufficient compliance with the requirements of the Phylloxera Convention is not accepted by the Swiss authorities. In the absence of such declaration and certificate, the consignment will be admitted only after a permit for its importation has been obtained by the Swiss importer from the Federal Department of Public Economy. The issue of the necessary certificate by the Ministry involves the examination of the premises on which the bulbs or plants were grown, and a fee of 2 guineas is payable in respect of such inspection. After the premises have been examined and passed, any number of certificates can be issued during the following twelve months, after which a further examination will be necessary. A charge of 1s. is made for each certificate issued.

Prohibition of Importation of Potatoes from the United States of America.—The 1924 crop of potatoes in the United States of America has been so plentiful that export markets for the surplus are being sought and small quantities have already been sent to this country. Unfortunately, the potato fields over large areas of the States are infested with the destructive Colorado beetle—a pest of which the importation into this country must be guarded against as far as possible. It will be remembered that the Colorado beetle established itself during recent years in a small district of France and the Ministry of Agriculture and Fisheries then felt compelled to prohibit by Order the importation of potatoes from that area, for so long as the pest exists. The importation of potatoes from the United States is attended with equal risks, and the Ministry feels it necessary similarly to exercise its powers under the Destructive Insects and Pests Acts and to prohibit the importation of potatoes from the United States of America. An Order entitled "The Colorado Beetle Order of 1924" has accordingly been issued, under which the importation into England and Wales of potatoes grown in the United States is prohibited. The Order comes into operation immediately, but provision is made for the admission of any consignments that may already have been shipped.

CATALOGUES RECEIVED.

We have pleasure in bringing to the notice of our readers the New Season's Catalogue of Messrs. Fidler and Sons, Reading. Although not published on a grandiose scale, it is comprehensive and includes all varieties of real practical value and worthy of cultivation, and should prove of service to the amateur when he comes to make his selection of flower and vegetable seeds.

A Birmingham firm, Messrs. Simpson and Sons, also present their 1925 Seed List. Much useful information is given throughout its pages, and a unique feature is the special cultural directions which are given to growers of potatoes and strong reasons why Scotch seed should be used. The culture of sweet peas is also dealt with concisely but yet accurately. Two pages are devoted to Sweet Pea Colour Schemes for table and garden decoration, while another is given over to a chat about varieties. These have been written, respectively, by Messrs. R. F. Felton and Norman Lambert, and should prove of the utmost value and interest to the raiser of sweet peas.

Other seed catalogues which have come to hand are those of Messrs. Daniels, Wymondham, Norfolk (Vegetable and Flower Seeds), and Messrs. Hawkins, 408, King's Road, Chelsea (Vegetable and Flower Seeds), with a useful section devoted to garden tools and accessories.

We have much pleasure in bringing to the notice of all growers the Annual Wholesale Seed Catalogue of Messrs. Cooper, Taber and Co., Limited, 90–92, Southwark Street, London, S.E.1. It is a comprehensive list and includes several novelties and specialities for the year. It is a list all growers should possess. We understand that they are also publishing a retail catalogue which can be had on application.

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THE BEST CONTRIBUTION TO OUR PAGES.

LAST April I announced that THE GARDEN would give an order for £5 on any advertiser in our pages as a prize to the amateur contributor who sent in the best note during the year. This year the prize is awarded to Mr. R. B. Cooke, Kilbryde, Corbridge-on-Tyne, who sent in a most excellent note on the hardiness of shrubs on Tyneside, which was published in THE GARDEN, November 29, 1924. The information given in this note is of the greatest use to all gardeners on the East Coast and in the North. The collection of shrubs mentioned, although not large in numbers, comes from every part of the world, and the information given about them is short and very much to the point.

FORCED FLOWERS.

At this time of year most of the flowers used in house decoration are forced, and many that are bought in the shops are not only vigorously forced, but have to travel long distances to market. I bought a bunch of tulips the other day and had to keep them in a vase in my office until I took them home at night. By the end of the day they were so flagged that they had flopped right over on their long stems. On reaching home I cut an inch or so off the stems and slitting them placed them in warm water. In a quarter of an hour they were standing straight. Now this is not a note to teach the readers of THE GARDEN what they all know, but to point out a fact that is not so universally recognised, and that is that forced flowers will last double the length of time if the water is changed regularly every day, particularly if the water is not taken straight out of the tap. The physiological reason for this I do not know, but it is a fact that is worth noting. I have kept these tulips in a hot room for over a week and they are nearly as fresh as on the day I bought them.

OSMANTHUS DELAVAYI.

I have drawn the attention of our readers several times before to the great attractions of Osmanthus Delavayi and without hesitation I do so again, for it is not spreading through the country with the speed that it should. People are always commenting on the extraordinary way in which two trees, rare in their day, Sequoia gigantea and Araucaria imbricata, were planted in almost every garden. The plants were insufficiently advertised, if they were advertised at all; yet they were quickly scattered throughout the country and seemed to catch the eye of the public more easily than they do now. Mr. Bean speaks of Osmanthus Delavayi as one of the best of the newer Chinese shrubs. It is hardy, easy to grow and easy to propagate; it is neat in its growth, charming in bloom, with its clusters of small white tubular flowers and with the added advantage that they are fragrant. It grows equally well as a graceful bush in the open, against a wall, or as a hedge. And yet with all these attractions it has not caught on as it should. The popularity of plants in our gardens is difficult to explain, why one plant will be scattered broadcast in two or three years and another, just as attractive and as easy to propagate, will hang fire. Osmanthus Delavayi illustrates a case in point which seems contrary to the old proverb which says: "Good wine needs no bush" unfortunately, however, its goodness is taking a long time to be discovered despite the fact that it has been brought to the notice of all shrub lovers many times before. It is to be hoped that its merits will soon be realised and that it will gradually take up its rightful position as one of the most outstanding shrubs in our gardens which has come from the Far East.

OUR SEED NUMBER.

The next issue of THE GARDEN will be devoted to annuals. I am sure that this number will be of great use to our readers, because annuals, from their nature, are constantly changing in popularity and it is exceedingly difficult for the garden lover to keep in touch with the latest developments among what, after all, are still the backbone of our gardens. Among special articles will be "Some Favourite Annuals," dealing particularly with clarkias, godetias, stocks and China asters; an article devoted to zinnias, which make such violent splashes of colour even on the dullest day; another on "Some of the More Uncommon Annuals" deals with such as are not often enough seen in our gardens. Then there is a note on the novelties in the sweet pea world which proves what strides this most popular of annuals is now making towards refinement. Another interesting contribution is that on "Annuals for the Rock Garden," which shows how the rock garden can be assisted during the summer months, which is usually its off season. Then there is an article on colour in the garden from an artist's point of view. And so the tale goes on. E. H. M. C.

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MECONOPSIS in a SCOTTISH GARDEN

BY A. H. HARLEY.

THE AUTHOR HAS BEEN EXCEEDINGLY SUCCESSFUL IN GROWING THIS FASCINATING GENUS AS IS SEEN BY THE ILLUSTRATIONS, WHICH ARE ALL OF PLANTS GROWING IN HIS GARDEN.

IT is surprising that so few people grow these beautiful flowers. Although most of the species are biennials, they are as easily grown as the majority of annuals.

In the drier climatic conditions in the south some difficulty may be experienced in growing these meconopsis, but in Scotland, especially in Perthshire, and farther north where the climate is more moist, there should be no difficulty in growing them.

My plants have no protection whatever and stand hard frosts and wet weather during the winter better than most biennials. I sow the seed about the end of February in heat, in pots, on a surface made fairly firm. They germinate very freely in a short time, and after having produced a true leaf are pricked off into boxes in a compost of loam, leaf-mould and sand, and are kept in slight heat till established. The boxes are then placed in a cold frame to harden the plants off, after which they are planted out in May.

Meconopsis, having tap roots, must not be allowed to stand too long in the boxes or they will get stunted and never make satisfactory plants. They want as long a growing season as possible before flowering. Most of the plants will flower the following year; but those that do not, make great growth and throw up a large flower spike the third year and generally produce the finest flowers. Meconopsis Wallichii and M. paniculata bear handsome persistent foliage during the winter in distinction to M. simplicifolia, which forms a large resting bud.

The other species mentioned die down in late autumn and show no sign of growth during the winter. Precaution, therefore, must be taken that they are not disturbed by any movement of the soil round about them. In cases where the soil is poor or inclined to be dry, a liberal addition of well rotted manure is beneficial; this should be placed well beneath the surface of the soil.

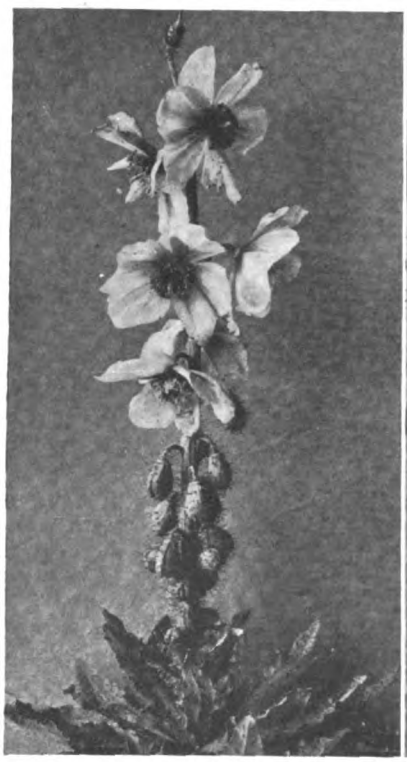
Those which are in fairly common cultivation are:

MECONOPSIS INTEGRIFOLIA, of which I have two forms. The illustration shows the large-flowered form, and one of my plants last year had thirty-eight flowers on the one plant. The other form I have has much smaller flowers, more cup-shaped; this sets very little seed, whereas the large-flowered form seeds very freely. These meconopsis come into flower in April and keep on flowering until the end of May; the cold weather we sometimes get during these months does not affect the flowers. This, I consider, the best of the early-flowering species, deserving of being grown in moist ground in any garden. The flowers on well grown plants are sometimes 7ins. in diameter or even more, being of a light yellow colour, and are produced in very large numbers. The foliage is dense, in the form of a rosette, from which the inflorescence grows up in early spring. I have a form growing under the name of M. brevistylum, but at present I cannot detect any difference between this plant and integrifolia. This species is a native of western China.

M. SIMPLICIFOLIA (Bailey's form).—The blossoms of this species spring straight from the neck of the stock on a single stem, and are quite the most gorgeous of the single-bloomed meconopsis, with flowers of dazzling sky blue, the colour being a darker blue in the opening buds on the back of the petals. This is a monocarpic form collected by Major Bailey in 1913, on the borders of Tibet, and first raised in the Edinburgh Botanic Garden. It is a very popular meconopsis and under cultivation appears to be quite distinct from the type plant of the species. It is also a free seeder.

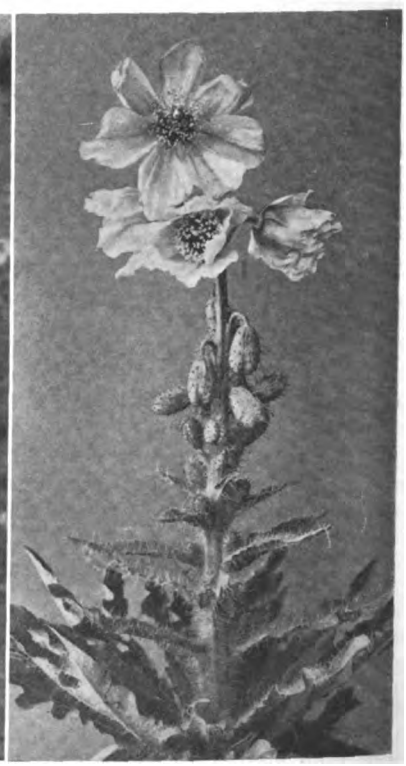
M. SIMPLICIFOLIA.—This species, with me, is perennial, and some of my plants have been in cultivation for the last six years and have flowered and produced seed annually on stalks which do not lengthen out as in Bailey's form. The flowers are purple and not nearly so pretty as Bailey's form. These two forms flower in May and June.

M. GRANDIS.—This species is also a perennial and I consider it one of the most showy in cultivation. In my



M. RUDIS, A RELATION OF M. PRATTII, WITH SKY-BLUE FLOWERS.

AS ITS NAME IMPLIES, M. RIGIDUS IS ONE OF THE LEAST GRACEFUL OF ALL MECONOPSIS.



M. PRATTII, WITH PRICKLY STEMS, FOLIAGE AND SEED PODS.

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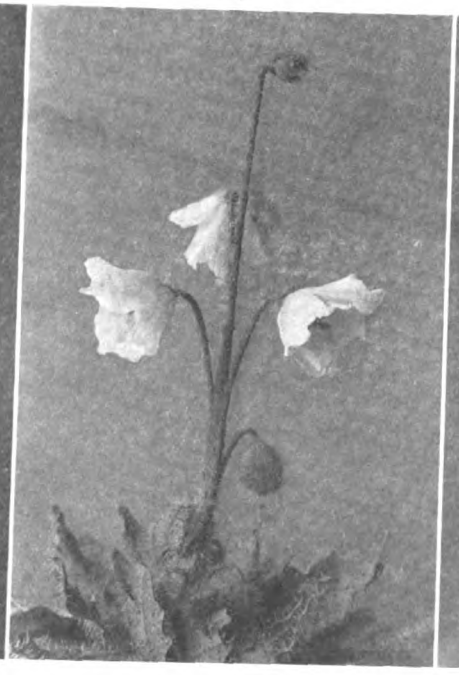
THE BEST OF THE EARLY FLOWERING SPECIES, M. INTEGRIFOLIA.



A WHITE FORM OF M PRATTII, M. PRATTII ALBA.

A ROBUST SPECIES WITH YELLOW FLOWERS, M. PANICULATA.

experience this species has proved itself a shy seeder, and is in consequence very seldom seen in our gardens. It is a good grower and, with care, those who possess plants are not likely to lose it. My plants have set no seed during the last three years, although the blooms have been hand fertilised. The flowers vary in colour from rich violet and clear blue veined with violet to duller slatey tones, 4ins. to 5ins. across, and are borne on stems over 3ft. high. Flowers in June.

M. PANICULATA.—This species is a robust grower, 5ft. to 6ft. high, with stout stems and has pendent yellow flowers. The stems have foliage with yellowish hairs. It commences to flower at the top, flowering from apex to base of stem. This species makes an excellent plant for growing in a rhododendron bed, coming into flower after the rhododendron blooms are past. It will continue flowering for four or five weeks, coming into flower with me in August. This species is biennial and seeds very freely.

M. WALLICHII.—This is a very robust grower as well as one of the most desirable, and one that is probably most often seen in gardens. Well grown plants should attain a height of about 6ft., commencing to flower at the apex, and the lower flowers opening over a period of six to eight weeks. The flowers are very variable in colour, ranging from pale blue through all the shades to pure white, and from slate to claret colour. The most attractive, I consider, are those having light blue tints. I have several times sown seed saved from the white forms, but the resultant seedlings show great variations in tints of the flowers, and very few come true to the parent white. For the last few years I have sown seed saved from the best coloured plants and have got improved colours, but up to the present I find it impossible to get rid of the slates and clarets. Now I seldom trouble to sow seed of this species in pots. From the number of plants growing in my garden, I secure a large quantity of seed in the autumn. This seed, in the following spring, I scatter, preferably in beds where rhododendrons are growing. Here it germinates very readily, and in the autumn this method gives me a large number of sturdy, healthy plants, which I transplant into positions where they are wanted to bloom the following summer. This species produces its blooms in August and September, and is the latest to flower; but, unfortunately, is also a biennial.

M. PRATTII.—Grows 15ins. to 18ins. high; variable in colour, some of the flowers are a pretty shade of blue and others showing purple tints. The stems, foliage and seed pods are very prickly. Prattii, like most of the other species, is a good grower and reproduces itself in quantity from self-sown seedlings if the soil is not disturbed by hoeing or raking, and is allowed to become fairly firm on the surface upon which the seed falls. It is a native of western

A GORGEOUS SINGLE BLOOMED SPECIES WITH BLUE FLOWERS, M. SIMPLICIFOLIA.

THE "HAREBELL POPPY" M. QUINTUPLI NERVA, WITH LAVENDER BLUE FLOWERS.

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China. I have a white form of Prattii, which, among meconopsis, stands out very conspicuously from the other members of the genus. The flowers of this are pure white and come true from seed. Both flower in August, and like the type, are biennials.

M. RUDIS is very similar to Prattii, with light clear blue flowers, but can be distinguished from Prattii by the black spines on the leaves. It flowers at the same time as Prattii and is biennial. I have another species under the name of rigidiscula. It is very like Prattii, but grows taller, over 2ft. high, and is very prickly to handle. Flowers same time as Prattii and is also a biennial.

M. QUINTUPLINERVIA, has single bell-shaped, nodding flowers of lavender blue, produced singly on slender stems about 18ins. high. The late Mr. Farrer gave it the name of the "Harebell Poppy," and considered it a "gracious and lovely thing." It is a native of the Kansu-Tibet border, at an elevation of 9,000ft. to 13,000ft., where it is found in great profusion in the alpine turf. In cultivation this is a very pretty species, but perhaps not quite so showy as some of the others, but, fortunately, is of a perennial character, and with me it increases very quickly, and single plants I got three years ago are now forming a clump of 18ins. diameter. I find this species does not require such a damp position as that required by Wallichii, but seems to prefer a well drained stony soil. This species blooms during May and sets seed, but not with the profusion of other species. Compared with others, the capsule is rather small and therefore does not contain a large quantity of seed. Seedlings I have raised from my plants vary in size of bloom and shade of colour, and if seed is sown in early spring I find some of the seedlings flower the same year.

M. LATIFOLIA.—This is a native of Sikkim and Bhutan, where it grows at a high elevation. This is one of the few meconopsis that like a dry situation, and I consider it one of the most beautiful species I have. The flowers are a pretty shade of Cambridge blue, and are very attractive. It has been called the Kashmir Poppy. It seeds so freely that self-sown plants are often found springing in the crevices of the rock garden, and these often produce the finest plants. In this position it develops stout stems and large numbers of flowers on same. It commences to flower at the end of June, continuing over a considerable period. I find it does not succeed in the damp positions that are suitable for many other species. My plants have been growing in the same situation for the last five years, a corner of the rock garden where it seeds very freely and sows itself. This species is usually biennial, but individual plants may not flower until the third year, in which case they are exceptionally strong specimens and the flowering stem may reach the height of about 30ins. and produce flowers in great abundance.

THE CONSTRUCTION OF A LAWN

BY REGINALD BEALE.

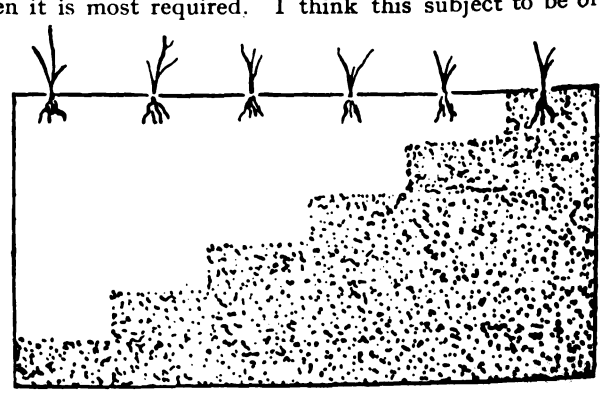
IT is no easy matter to produce a really first-class lawn, nor is it simple to explain in black and white how it can be done and at the same time keep within the limits of a series of short articles. From my experience the best results are obtained when the work is ordered in such a way that the ground is ready for sowing by mid-August. The soil at this time of the year is at its maximum warmth, and if the ground is ready the seed can be sown at the selected moment, and that is as soon as the summer definitely breaks. Seed sown under these conditions should germinate in less than a week, and the warm autumn rains should make it grow so rapidly that it will require mowing several times and be well established before the winter sets in. It will also stand a better chance to smother out any weeds that may be lying dormant in the soil when they appear in the spring.

Equally good results can be obtained in the spring, provided that it is open and genial, sowing the seed from March to May according to the season. If the weather is favourable, with sunshine, showers and warm still nights, the young grass will simply jump out of the ground and quickly form a turf. As, however, we frequently experience a month or six weeks of cold parching wind at this time of the year, there is always a chance of trouble, because grass seed will not germinate evenly or young grass thrive under such conditions. If the season is cold or late, the soil temperature will be low, so a slow patchy germination may be expected and weeds will certainly cause trouble.

A lawn, if sown between the middle of August and the end of September, should be fit for use by the end of the following spring. It can be sown later, up to mid October, but every day's delay slows up the germination and adds to the risk of failure. A spring sown lawn, given favourable weather, should be fit for moderate use by the end of the summer.

The construction of a new lawn can roughly be divided into five operations—digging, manuring, preparing the seed bed, seeding and after-treatment. As a general rule the ground should be dug one spit deep, turning the soil well over and at the same time breaking up the large clods and picking out any stones, weeds, roots and other rubbish the soil may contain. Grass being a shallow rooting plant makes it quite unnecessary to work the soil to a greater depth, unless the old turf is to be buried, in which case it should be trenched two spits deep. A pleasure lawn need not be levelled horizontally unless it is required for games. This question will be dealt with later on in the construction of a lawn tennis court. At this point drainage should be considered and, if necessary, a system of drains put in. Should the soil be too light and poor or too heavy to carry a fine, close turf, as is sometimes the case when dealing with very sandy or heavy clay soils, an effort should be made to procure sufficient light loamy soil to cover the site to the depth of at least 2ins. If the soil is deficient in lime, it should be applied in the form of pulverised chalk at the rate of 1lb. to the square yard and worked in.

Manuring is the next and most important operation. I cannot too strongly recommend my readers to give it very careful thought, because no matter how good the soil may be reputed, the results will be both better and quicker if it is well manured. The best general manure to use is fresh peat moss, stable manure, old well rotted short straw manure and Carter's Complete Grass Fertiliser. The peat moss and rotted straw manure should be spread over the surface at the rate of one load to every 100 square yards of the surface, and forked or dug in in such a way that the bulk of it remains within 2ins. or 3ins. of the surface. If the Complete Grass Fertiliser is used, broadcast it over the surface at the rate of 2 oz. to the square yard and rake it in. Some maintain that manure, if used, should be buried at least 6ins. deep, while others hold that it should not be used at all for fear of making the surface hollow and the grass grow coarse and rank. I have proved over and over again that the closer the manure is kept to the surface the better and quicker are the results, because the young grass plants can reach it quickly and receive the desired food when it is most required. I think this subject to be of such



importance that I do not apologise for stressing it by means of a sketch. The shaded part is an effort to represent the manure mixed with the soil varying in depth from nothing to 6ins.

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Which of the little plants are likely to grow fastest and thrive best, those that have rooted straight into it or those that have to struggle down several inches before they reach it? There is no fear of the quantity recommended making the soil hollow if it is carefully mixed with the soil, and the suggestion that it makes grass grow coarse and rank is a fallacy. It may, and I hope will, make the grass grow robustly for a time, but the mowing machine will soon cure that. If a mixture of coarse grasses is sown, a coarse turf will result; but if only the very finest grasses are used, a turf of the finest quality will be produced.

Prepare the seed bed by breaking up the clods, removing all large stones and weed roots with an iron-toothed rake; then roll, rake and tread the ground until the surface becomes quite firm, fine and true, and when walked upon hardly shows the imprint of the foot. Too much care cannot be given to this part of the work, and if it is gone over two or three times, whether it wants it or not, so much the better.

In order to produce a close, dense turf of the finest quality within a year from the date of sowing, given normal weather conditions, the seed should be sown at the standard rate of 1oz. to the square yard, or at the maximum rate of 2oz. when more certain and earlier results are desired. It goes without saying that if the seed is sown thickly, the ground will be covered almost from the start with a thick mat composed of a multitude of little grass plants, which, being mutually protecting, will daily increase in strength and form a close matted sward (see Fig. A) and to a great extent smother the weeds, which will surely be present in quantity. If, on the other hand, it is sown thinly, a thin crop is produced (see Fig. B) which may be damaged or destroyed by a short burst of hot sun or cold wind. The weeds will have an equal chance with the grass,

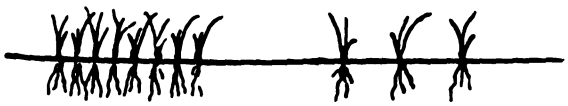

Fig. A. Fig. B.

and in any case one has to wait for the young grass plants to grow and spread until they intermingle with one another, mat and form a turf.

Sow the seed on the raked surface, choosing a calm, dry day, otherwise much of the seed may be blown away and lost, or, should the soil be wet, it will stick to the operator's boots and so spoil the finish. In order to obtain an even distribution divide the ground into strips about 3ft. wide by means of pegs and string and the seed into as many portions as there are divisions. Sow the seed by hand with the back bent, taking care to spread it as evenly as possible, and if you doubt your own skill in this direction, divide each portion of seed into two parts and go over the ground twice. The seed must now be covered to a depth not exceeding a quarter of an inch, and the most simple means of doing this is lightly to rake the surface in two directions, taking care not to bury it too deeply. The ground should then be rolled and cross-rolled with a light roller.

The young grass should appear above the ground in five to ten days if autumn sown, and fourteen to twenty-one days if spring sown. When it is about 1in. high, roll it with a light roller, a wooden one preferred, and a few days later cut it with a sharp, free-acting machine set rather high, or if a skilled man is available, it is better to make the first cutting with a sharp scythe. In any case do not make the fatal mistake of letting it grow 3ins. or 4ins. long before mowing, otherwise it may send out stiff bents and grow long and thin instead of tillering out and covering the ground, and so cause no end of trouble. From the time of the first cutting the lawn should not be rested from the mowing machine so long as the grass is growing, and a well kept lawn should be as closely shaven and as bright and green on Christmas Day as it is in June.

The choice of the quality of the seed should be governed by two factors, the type of turf required and the nature of the soil upon which it is to be grown. If the soil is of a heavy, sticky nature and there is no intention to alter its mechanical condition by the incorporation of sand, fine breeze or charcoal, use a mixture containing rye grass. Such mixtures germinate freely, grow quickly, and more or less hide any coarse grass that the soil may contain. Mixtures composed wholly of the finest grasses without rye grass are better suited to light, well drained soil, but they are more difficult to grow, because they are slow both in germination and growth, and coarse natural grasses show up like weeds in contrast with the fine velvety turf.

THE GREEK WINDFLOWER (ANEMONE BLANDA)

FROM the mountains of Greece comes this lovely species, which is about the first to open its charming flowers, and this before winter has left us.

It grows about 6ins. high and has flowers which measure 2ins. across, those of the type being of a beautiful deep blue, and there are charming shades among the varieties of pale blue, pink, deep rose and pure white, all of which are highly desirable for adding welcome colour to the garden in the early days of the year.

Although this species bears a great resemblance to the Apennine anemone, it is quite distinct from that plant, the former having a round tuberous root, whereas the latter has a creeping rhizomatous root and flowers several weeks later.

A very distinct variety of the Greek windflower and a very lovely one is A. blanda var. scythinica from north Kurdistan, which has pale blue and white flowers, the inside of the petals being pure white and the outside pale blue.

A warm sheltered border, the soil of which is a light rich loam, warm raised positions on the rock garden, and sunny slopes offer the surest means of success with this early flower.

With me it increases freely by means of self-sown seedlings in a long narrow border which faces south and south-west, and which is protected by a 6ft. wall. Naturalised in the grass, it survives, but does not increase to any appreciable extent.

E. MARKHAM.

THE BEAUTIFUL BLUE FLOWERS OF ANEMONE BLANDA EXPAND IN EARLY SPRING.

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LILIUM AURATUM

BY A. GROVE.

HAPPILY there is no difficulty in telling the story of L. auratum, for, unlike L. candidum, Martagon and one or two more of the genus, the early history of the plant in this country is not covered by the dust of centuries. Much of its history, indeed, is to be found in the earlier numbers of THE GARDEN, for the founder of the paper has always placed lilies in the forefront of hardy plants, and given every encouragement to their cultivation wherever and whenever the opportunity has presented itself. As far as cultivation in this country is concerned, auratum is a modern lily, for though odd plants had reached Europe earlier in the century, it was unknown to gardeners generally before Messrs. James Veitch and Co. introduced it to public notice at the exhibition of the Horticultural Society in South Kensington, on July 2nd, 1862. Messrs, Veitch had received the bulbs from J. G. Veitch, who explored parts of Japan and China for his firm in 1860–61, and at about the same time Standish, the nurseryman, had also received bulbs from Robert Fortune. The lily naturally created a great stir in horticultural circles, and Dr. Lindley wrote a panegyric on it in the *Gardeners' Chronicle* at the time. Since then importation of the bulbs has been going on without a break except for the war years. When the treaty ports were opened in 1859, L. auratum, known to the Japanese as Yama-uri—the hill lily—grew in greater abundance on the lower slopes of Fusi-Yama than elsewhere. In a letter to THE GARDEN in 1878 (Vol. XIV, page 560), "E. H. W." wrote that "The soil that covers the crumbling igneous rocks to a varying depth consists of decomposed leaf soil, mixed largely with the detritus of this volcanic rock, that sparkles with particles of mica, and is excessively porous and friable. This lily grows on hill sides where there is perfect drainage, in a soil free from lime, in a climate that is both hotter and wetter than our own in summer, and in winter is dry and bright, with occasional sharp frosts of a few days' duration. Another point to be noticed is that this lily abounds at the edges of woods, where the dwarf bamboo, which in Japan takes the place of grass, effectually shields the stem and roots from the sun's rays, while the upper part of the stem with the broadest leaves rejoices in the sunshine." In an interesting account in THE GARDEN (October 7th, 1882, page 316), Maries, who collected plants in Japan for Messrs. Veitch in 1877, and to whom we owe Hamamelis mollis and Styrax Obassia, among other species, was a little more precise. "L. auratum," he wrote, "was growing on all the exposed grassy slopes near Fusi-Yama to an elevation of 4,000 feet, but always in tall, rough grass from 2 feet to 4 feet high. I seldom saw this lily in or under trees, but always in grass and among low bushes and always in peaty, leafy mould with pumice underneath, and not more than 3 inches of soil on the ground. . . . The mountain road to Fusi-Yama is a mass of auratum in June and July; every patch of open ground is covered with it. . . . Very often one sees a bulb of L. auratum sticking on the black earth by the mountain track. I have never seen above 25 to 30 flowers on a wild plant of L. auratum, and it seldom grows above 4 feet high, while in some places in England it often reaches more than three times that height."

In so far as the Japanese thought anything of the plant at all, they regarded it then as an edible root and nothing more. Probably because it is not so amenable to cultivation and is not increased so readily, L. auratum, as an edible bulb, has not the vogue of L. tigrinum—a common vegetable of the Japanese, and regularly cultivated as a field crop: but until the bulbs became more valuable for export than for food, they were sometimes cultivated in plots as a crop much as we cultivate onions. The Japanese have never prized the flowers, which conflict with their canons of beauty. To them the diminutive L. medeoloides—the wheel lily—represents the acme of refined elegance, and so they had no qualms about digging up the bulbs of L. auratum to supply the demand which sprang up for them in England and the United States soon after the port of Yokohama was opened to foreign trade. That was the beginning of the export trade in lily bulbs which grew and grew till it embraced all known Japanese species and varieties as well as some from China and Formosa, and has reached such huge proportions as threaten ultimately to leave Japan denuded of wild lilies. The extent of it may be gauged by a statement in the catalogue of the Yokohama Nursery Company for 1912, that over fifteen million bulbs were then annually exported: and though the trade fell to modest proportions during the war, and has since been seriously crippled by the catastrophe which overwhelmed Yokohama in the autumn of 1923, it will doubtless reach pre-war proportions in time.

Except for a minute proportion raised from offsets of cultivated, collected bulbs, every bulb of L. auratum shipped from Japan is a wild one, dug up by collectors whose business it is to find all the bulbs they can and, having found them, get them down to the merchants in Yokohama. It is many years since the last of the wild lilies was dug up on Fusi-Yama and in the neighbourhood of Yokohama, and then, to satisfy the ceaseless demand, collectors had to go further afield. Gradually, as locality after locality was stripped of bulbs, fresh ground had to be broken until now collectors have to seek for L. auratum in the northern part of the main island. Presumably the process will continue until the species ceases to exist as a wild plant, and then the Japanese must either give up the trade in these bulbs or raise the lily from seed.

Such varieties of L. auratum as virginale, cruentum, rubro-vittatum, Wittei and pictum are not hybrids, as is so often supposed, but natural forms propagated solely by offsets, and as that method is comparatively slow, the varieties in question are seldom available in quantities. Alive to the ease with which L. auratum and other Japanese lilies are raised from seed or by scale propagation, Western cultivators find it difficult to understand why an intelligent race like the Japanese perpetuate the system now in vogue, with its primitive methods and prodigal waste; but probably the low cost of collected bulbs and the fact that they can be turned into money in about a year, are the governing factors. It will hardly be believed that before the war (1913) the Yokohama market price of bulbs of L. auratum, 8ins. to 9ins. in circumference, averaged 1d. apiece.

When dug up by collectors, the bulbs are thrown into receptacles, of which the commonest is the ubiquitous American kerosene tin, loaded on to carts and trundled down through the long journey to the nursery gardens in and around Yokohama. Their condition on arrival at their destination depends in great measure on the weather, for if the bulbs are harvested in a wet autumn the mortality among them, even on the comparatively short journey to Yokohama, is severe. Once there, such as are not decayed, bruised or damaged beyond recall, are graded and then planted out in rich soil. As the stems appear and grow up, the ground is usually earthed up round the roots, just as potatoes are earthed up in this country, the process having for its object the rapid fattening of the bulbs for market, for they are sold by size: the larger the bulb the more floriferous will it be. In this connection we must remember that wild bulbs usually throw four to three flowers; and multi-flowered stems are comparatively rare. Writing to the *Gardeners' Chronicle* on February 10th, 1883, Mr. Bruère reported the receipt of a bulb 22ins. in circumference and 2lb. 3oz. in weight, from Messrs. Protheroe and Morris. One season is usually sufficient for the fattening process, and in the autumn of the year after they have been planted the bulbs are lifted and thrown into baskets, all offsets, of which each bulb usually produces several, being saved for cultivation in the same way as the bulbs. The latter are taken to the warehouse compound, where they are shorn of their roots, cleaned and graded, all obviously diseased or damaged bulbs being discarded. Incidentally, the latter are sought by the poor, who esteem them as a vegetable. Then the bulbs are enveloped in plastic clay till each resembles an apple dumpling, and as soon as the clay is all but dry they are packed in the familiar cases, the interstices between the bulbs filled in with dry, powdered clay and the cases shipped to their destination. Originally we were the best customers of the Japanese bulb merchants, but for many years past the bulk of the supply has

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gone to the United States, where L. auratum, speciosum and longiflorum have always been appreciated.

The clay envelope had its origin in the mortality among the earlier consignments of bulbs, for at one time the losses were so serious as to render the export unremunerative. Bulbs of L. auratum are subject to a fungus disease (Rhizopus necans), which probably originates in the rich, heavily manured soil of the Japanese nursery gardens. In the days before clay was used to isolate the bulbs, the inclusion in a case of a single diseased bulb was sometimes sufficient to infect the contents of the case—anything from fifty to two hundred bulbs—and render them useless. Consignments were always sent at buyer's risk, and having paid for the shipments by bill of lading, the importer was left without remedy in the not infrequent event of a consignment arriving in an unsaleable condition. Various methods of packing were tried, such as sandy earth, charcoal and sawdust, but all failed, and a lack of co-operation between the parties involved did not help matters. Under the most favourable conditions, passage of the Red Sea, especially at the comparatively slow speeds prevailing in the 'seventies, must have been a severe trial to the bulbs.

(To be continued.)

THE ST. DABOEC'S HEATH

THERE are not many of the dwarfer ericaceous shrubs which can claim so many attractive attributes as the subject of this note and few are more worthy of being more widely grown. Its comparative scarcity in gardens may possibly to some extent be due to the popular misconception that this heath, being a "peat plant," demands a peaty soil, whereas it will thrive abundantly in any light or medium lime-free loam. It is not even very fidgety as regards moisture, for many of our best groups are growing in the light, gritty loam of banks so sloping that they have had to be propped-up by boulders or low retaining walls. Full exposure it enjoys, but it does not object to the partial shade of deciduous trees.

Daböecia polifolia is a native of some parts of western Europe, including Ireland. The type species has rose-purple, egg-shaped flowers, often ½in. long, on erect spikes, 6ins. or more in height, the little ovate leaves being a dark glossy green above with white undersides. There is a good form known as D. atropurpurea with flowers that tend to more of a mauvy-crimson hue, a remarkably fine variety, and then there is that curious affair, var. bicolor, or versicolor, which bears white, blush and purple-and-white blossoms all on the same plant. But the pick of the basket is unquestionably the variety alba, which was discovered in Connemara. This is not only more vigorous and more prolific than any of the foregoing, but the flowers are larger and ampler, lovely globes of snowdrop whiteness strung on upright racemes which often exceed 8ins. in length. The foliage of this form is also of a brighter, fresher green than that of the others. And this exquisite thing will begin to flower in May and continue in full beauty until the first frost of autumn. The only things that ever mar the chaste and delicate purity of the blooms are the bees, especially those little black fellows, which are demoralised enough, or intellectual enough —which you will—to pierce the corollas and so filch by illegitimate, back-door means, the nectar which they cannot otherwise reach. The result is that a sharp eye will notice that the white globes become pitted as if punctured by a rusty needle. (Who says that there are no rebels in Nature's well ordered realm who reck not to defeat her most cherished designs ?)

A PLEASING PICTURE IN THE WOODLAND WITH DABOECIA POLIFOLIA IN FOREGROUND.

When planting D. polifolia in our light loam we usually give the plants a fairly generous application of leaf-mould, working this about the roots, and the clumps are set deeply so that the soil comes well up to the foliage. They are not firmed in too hard and the heavier the soil the lighter should be the pressure and the more leafy material is required. Once planted this heath never gets any attention beyond an occasional clipping over in spring whenever this seems desirable by way of encouraging a compact and shapely growth. A distance of at least 24ins. should be allowed between each clump when grouping, but half of that will do when the plants are to form an edging. The height does not often exceed 2ft. This shrub is sometimes listed as Erica Daboecii, or as Menziesia polifolia. It has other aliases which are, happily, getting forgotten. A. T. J.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

there is always information available from a staff of expert contributors and consultants ; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

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PLANTING RETAINING WALLS AND BUTTRESSES

BY DR. R. LLOYD PRAEGER.

THIS IS ALWAYS A PROBLEM TO GARDENERS AND IN THIS ARTICLE DR. PRAEGER DESCRIBES THE BEST METHODS AND THE BEST PLANTS.

THE mania—for so many people will call it, and so it really is with some enthusiasts—for sticking plants everywhere is, to my mind, wholly commendable. If you do not do it, nature will, provided that the place in question is one where plants can grow at all. Furthermore, nature will choose those plants which she considers most suitable for the site, quite irrespective of their artistic qualities—the ubiquitous grasses, most successful of all races of plants; good serviceable things like daisies and brambles and couch-grass; or others with aeronautical tendencies like dandelions and groundsel and willowherb, whose flying seeds enable them to surmount every barrier and to perch in impossible places. Many of these cheerful vagrants are dear to every true lover of plants: also to the gardener—when they are in their proper place. But on the whole, the gardener prefers making his own selection of plants, even when he attempts the colonisation of unusual sites for horticultural effort: and he properly rejoices when he converts an old buttress or wall-top into a blaze of blossom.

There is often a considerable amount of art required to achieve success in such enterprises: nowhere is a careful reconnaissance—an intelligent study of the ground and the conditions—more desirable. If it is a retaining wall, what does it retain? Is it an earth slope which sends a plentiful supply of water into the wall? Or has the back of the wall got drainage in it, to remove percolating water? How does the wall face—north, south, east or west? A lot depends on this. And again, if you propose to use choice things, the question of climate comes in—notably as regards rainfall, temperature and sunshine. It can never be too much hammered into the enthusiastic beginner that Lancashire is not Devon, nor is Devon Essex, any more than clay is sand, or sand loam. So first of all study your site as you would the environs of a badly bunkered golf ball, especially as regards aspect and moisture; and to do this satisfactorily you must see, or at least envisage it in both summer and winter weather: according to your mature diagnosis you will plant it with anything from sempervivums to lady-ferns.

A DRY WALL WITH A WESTERN ASPECT AND MANY CHOICE INHABITANTS.

In planting a wall of any kind, there is one outstanding question, the answer to which will at once determine the nature of your work, and often the measure of your success. This is the obvious question—is the wall you wish to plant already in existence, or is it about to be built? If the latter, then all is well, and you may sail straight in. But if the former, the problem is more difficult, and a good deal of care must be taken. This is because of the difficulty in arranging properly the roots of plants in a wall already built. Especially if the situation or aspect is a dry one, it is most important that the roots of what we plant should be combed well back, that they may have access to the moister soil behind. This is easily done if we plant at the same time as we build, and this plan is very much to be preferred. But fate often decrees otherwise. There stands our wall already, and we have to make the best of it.

Success in this case—indeed, in either case—will much depend on the way in which the wall is built, and the nature and shape of the stones employed. These should be as long as possible in proportion to their height, as this diminishes the number and height of the vertical joints, which are a source of trouble, since it is by means of them that the earth is always trickling away. The upper surface of the blocks should be flat or even a little concave—not convex—so as to retain water which falls as rain, and pass it into the wall. All stones should, of course, be laid with a backward slope, to assist the same object as well as to ensure stability. The stones should be laid so as to break joint, the end of each stone being as far as possible over the middle of the one below.

The best spots for planting will be at the base of the vertical joints as thus arranged, in other words at the centre of the upper face of the stones. There they will have a good solid bed, and moisture will come to them from the joint overhead. In practice, of course, we shall have to put up with whatever building materials are available, and things will not work out so ideally: but the principle remains.

As to the plants to be used, these will depend entirely on what kind of wall we wish to plant. The subject may be anything from a little old buttress of a potting shed to a new 30ft. retaining wall which we wish to hide with a screen of trailers and shrubs. Let us consider the former case—an old mortar-built buttress. We can in the first place take a hint as to its suitability for planting from the weeds which it harbours. If devoid of vegetation it must be either very dry or very barren, and we shall proceed to scoop out holes as deep as possible, choosing spots at the base of the vertical joints. Make up a rich compost with plenty of leaf-mould (which holds moisture well); fill the bottom of the hole with it. Then insert your plant carefully—young, not old—working the roots well down, and then fill the hole in stages, tamping the stuff in as you go with a blunt stick. For dry conditions such as we have assumed above, autumn is the best time for planting, as a spring drought might well prove fatal if we delayed until that season. If our wall has a bank of damp earth behind it, or a northern aspect, we shall have less difficulty in getting the plants established, which is the main trouble when planting has to be done subsequent to building. When the two proceed simultaneously, there is no trouble. When a course of stones has been laid (sloping backwards as already specified), cover them with an inch or so of good compost. Lay the plants on this at the centre of selected stones (the distance apart varying according as the plants will ultimately be large or small),

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see that the roots are well spread and kept well back, lay on a little more compost, and then the next layer of stones, breaking joint as already indicated.

As to the plants to be selected, we may first of all go back to our old dry buttress. For such a place no plants can beat the sempervivums, which can endure almost unlimited drought. They are so well known and so easy to plant as to need no comment. Their cousins and fellow-succulents the sedums prostrata, Polygonum Brunonis, PP. vacciniifolium, and Emodi, creeping thymes, Veronica incana. If cushions are desired, Saxifraga sancta and its invaluable hybrids apiculata, apiculata alba, and Elizabethæ never look better than on a wall—the sancta blood has a vigour about it not possessed by any other of the kabschias. Acantholimons will make fine clumps, notably A. glumaceum, as will many of the erodiums and Silene Schafta. Our old friends, Arabis albida, Alyssum saxatile,

A WALL GARDEN IN SPRING WITH A MASS OF BLOOM OF ALL SHADES AND TONES.

are to some extent impostors, in view of their fat leaves, for they do not really like very dry places, though they will endure them; there are very few of them that are happiest on a dry wall; most of them prefer rock-garden or dry-border conditions; a few (*e.g.*, S. pulchellum, and S. villosum) actually like a wet place. There are many plants more suitable than sedums for our dry buttress—pinks of sorts, onosmas, thrifts; silver-leaved things like artemisias and achilleas; subshrubs such as Pyrethrum densum, micromerias, santolinas, Cheiranthus alpinus, æthionemas; Anthyllis montana loves a dry spot, as does Nepeta Mussini and those two excellent hawkweeds, Hieracium gymnocephalum and H. villosum. Campanula Portenschlagiana, which has none of the characteristics which one associates with plants capable of resisting drought, does surprisingly well on a dry wall; and if you want a big bold thing, Othonnopsis cheirifolia will make a waterfall of glaucous leaves and golden flower-heads in impossibly waterless places. In view of the half-vertical position of the plants over each other, discretion must be exercised when planting, lest a bushy thing is so placed as to keep all the rain off some treasure immediately under it.

Following on these, there is a wide choice of plants which like fairly dry positions. If you want things that will drape the wall with curtains of foliage and flower, there are acænas of many sorts, the lovely aubrietias, Androsace lanuginosa, Dryas octopetala, Fragaria Daltoniana and F. lucida, Gypsophilla the rock roses and candytufts are invaluable when a bold effect is desired—they all ramp upon a wall. If we go to the other extreme and wish to try very choice things, we can break our hearts over Conandron ramondioides, Jankæa Heldreichii and the lewisias perhaps less often on a wall than in other situations.

Where moister conditions prevail, we can decorate with mossy saxifrages of many kinds, red, pink and white; the waldsteinias are vigorous, easy and attractive; and this is the place for the lovely ramondias and haberleas if we desire choice things.

Where the area to be planted is large—say a retaining wall 20ft. high—the use of many of the plants enumerated above will prove ineffectual, giving only a finicky effect. Something bolder is needed. The more robust rock plants—arabis, alyssum, aubrietia, waldsteinia, othonnopsis, etc., will help, but trailing or prostrate shrubs will often be needed. Of the former, vitis (ampelopsis) of many species is always available, producing a fine mass of colour in autumn to make up for its inconspicuous flowers. Ivies and honeysuckles can be used with good effect, and also cotoneasters—C. horizontalis is lovely in autumn, with its scarlet leaves and berries, and many of the prostrate kinds will be found useful. Wichuraiana and other vigorous rambling roses may be used with excellent effect. These are best planted on the top of the retaining wall and allowed to hang down, as in this way they can be manured

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and otherwise attended to. The others mentioned should be planted *in* the wall, or at its base or top, according to their proclivities for climbing or hanging. There rises before my mind a vision of high retaining walls in the Canary Islands, supporting banana fields, and planted along the top with ivy-leaved pelargoniums, which hung down, a solid sheet of pink bloom a dozen feet deep. But our much-abused climate does not permit this kind of thing. Where you have to deal with a wall which is really damp and does not get much sun, ferns may be used to great advantage. They delight in such a situation, and there is such a variety of beautiful forms to choose from that a discussion of them would require a separate article.

SECATEURS AND OTHER GARDEN TOOLS

I TAKE a great interest in all garden tools, especially such as are used in pruning. For a long time I looked with suspicion upon secateurs of all kinds, thinking them to be very inferior to a pruning knife. However, experience proved that a good pair of secateurs beat a knife on several counts. One is that when on a ladder pruning wall trees one has a much longer reach with them than one has with a knife—if able to use one's left hand the space pruned without moving the ladder will be double that which can be covered with a knife. Again, once the action of secateurs has been mastered the work can be far more quickly done. This has been proved in nursery work over and over again. But—and it is a very important "but"—the secateurs must be good ones, handy to use, capable of making a clean cut, and not readily put out of order; also with blades which will take and keep a good edge for a reasonable time. I have tried endless patterns of this useful tool, but have found very few really good ones, lots of really bad ones, many indifferent. In one or two cases where a good pattern has been secured, a further supply was unobtainable. One excellent pair came from a Sheffield firm, but on trying to get another lot they were found quite different and very inferior. The fact is the English makers are quite out of the running in competition with other countries in the manufacture of secateurs. They will not take the trouble to find out what is the best form to adopt, and the steel they employ is not as good as that used by the best French makers. Perhaps a really good garden tool of any sort is wasted upon many amateur gardeners, because not one in ten takes any proper care of garden tools; their spades and hoes are perennially rusty, their knives and secateurs ditto, and probably, when required, a long hunt will ensue before they are unearthed from some hole or corner where they were put when last used. It would save a great amount of time, annoyance and hard work if the gardener would make up his or her mind to have a place for each and every garden tool in a dry building: point one. Point two: keep a piece of greasy waste or rag in the place where tools are stored, and after using spade, hoe, hedge shears, or other steel tools, wipe them dry, and then rub over with the greasy rag, before hanging them on nails or hooks on a dry wall. If this be done regularly the tools may be kept as bright as silver with very little trouble, and when required for use they will be in perfect condition at a moment's notice. Before winter sets in such tools as hoes, which will not be required for months, should have a coating of vaseline, which is a better protection than oil. I know that this is a counsel of perfection and not easy to keep up, but I assure my readers that it is well worth trying, even if one should at times fall somewhat below the high standard aimed at. Neglected, rusty tools must either be scoured with emery-cloth and oil—a nasty, grimy job—or have gradually to be cleaned by work; and all the time this is being done nearly twice the labour is being expended that would have been put into the work with a clean, bright tool. Not only so, but in the case of a rusty hoe the work will not be so satisfactory. This is a long digression from the subject in hand, but the point I want to bring home is this, it is useless to spend a lot of money on good tools if one does not keep them in order. One rusty spade is about as good as another rusty one, but an indifferent bright spade is better than a good rusty one, while the best pattern if kept bright will easily beat all others!

To return to our secateurs. The careless gardener would do well to stick to cheap patterns, for if he should buy the best they will soon be ruined, and two or three pairs may be had for the price of a high-class pair. On the other hand, to the person who loves his tools and delights in their smooth and efficient working, I would say, have nothing short of the *best*, and take every possible care of them. They will outlast any of the cheaper articles and will always be a pleasure to use. Not enough is made of the pleasure of work: if one be in fair health and does not try to do too much at a time, garden work should be a pleasure in itself, irrespective of the results obtained.

I can safely say that of all the many secateurs I have tried none has pleased me so much as those lately advertised in THE GARDEN by Mr. C. A. Jardine. They are called the "Guienne"; they are made in France by French workmen and are sold literally by the million at home and abroad. They are by no means cheap, in fact, some would call them very dear, but when one finds them cutting green wood like a pat of butter, one forgets the cost in the delight of work well and pleasantly done. J. DUNCAN PEARSON.

EARLY SPRING FLOWERS AT VINCENT SQUARE

WITH the advent of the second Show of the year at the Royal Horticultural Society's Hall, Vincent Square, on January 27th last, the early spring flowers presented themselves, bringing with them a dash of colour and fragrance which raises one's hopes for what is to follow in the later seasons of the year. It was, indeed, a gay and festive scene which met the eye on entering the hall. Spring flowers were there in plenty, and we realised perhaps for the first time that we were really leaving winter, with its dull gloom and fog, behind once again.

Perhaps the most outstanding exhibit, and one which commanded attention, was that of a magnificent collection of forced bulbs comprising hyacinths, tulips, freesias and daffodils, arranged by Messrs. Sutton and Sons of Reading with their customary skill and taste. The group was an extensive one, and the effect in the mass was striking, while the quality of the individual blooms was excellent. Hyacinths, perhaps, were the prominent feature, and of these the graceful cynthellas were predominant in shades of blue, pinks, whites and yellows. Roman hyacinths were conspicuous by their absence. It may be said in passing that apparently the stock of this class is low and, at present, growers are doing their utmost to increase it. For general decoration the multifloral hyacinths will be found to be of great value, as their large-flowered spikes, carrying many flowers, look exceedingly well in vases; and then, again, their early-flowering quality gives to them an especial recommendation. In tulips there was a wide selection offered in all shades. Among the many varieties which were on show were a few of note, such as William Copeland of a delicate lilac shade, Fireball, Proserpine, Vermilion Brilliant, La Reine, Montresor, Duc Van Thol and many others too numerous to mention. The numbers of these forms bring home to one the enormous amount of time and labour which has been expended on this flower, and it is indeed gratifying to witness the success which has attended the efforts of the hybridist and the raiser of tulips. It is a flower which will never lose its place in our hearts, partly owing to its bright and varied colours and also partly to its season of flowering. Freesia Excelsior was also in good condition, along with Crocus La Majestueuse, while a few well grown plants of Iris reticulata having a dark tone were interspersed throughout the bulbs along with palms, asparagus and ferns.

One always associates early spring with primroses, and on Tuesday last one was not disappointed. Messrs. Carter and Co. provided a really fine show of varieties of this valuable plant for this time of the year. Their variety of P. malacoides Princess Mary predominated, and of the several varieties of this species which exist Princess Mary is distinctly one of the best. That this has been recognised is clearly evidenced by the fact that it received an award of merit in 1922 and is still to the fore. In this variety the flower-stems are much taller and bear more numerous whorls of substantial flowers of rosy mauve colour. It has a better constitution than most varieties of this species. Numerous forms of P. stellata lent a distinct and subtle colour to the stand. The colours of such varieties as Carter's Crimson King, Holborn Rose, Carter's Salmon, Carter's Fairy Queen combined with a graceful habit and elegance were much appreciated and admired.

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For greenhouse decoration at this season of the year P. stellata and its numerous varieties are really invaluable, few flowers being able to provide such a wealth of colour and bloom as this useful species.

The exhibits of the earliest blooming rock plants showed what brilliance they can display, especially when given a little protection from the rough weather. In the open, although invincibly hardy, the earlier ones are too often beaten down, muddied and discouraged by the storms of the new year, but in a cold greenhouse they give a wealth of subtle colour and scent that is being more and more appreciated.

Messrs. Waterer made a picture with Iris Sind-pers and Pulmonaria angustifolia rubra, pale aquamarine and old rose, against a dark background of dwarf conifers. Iris Sind-pers retains the wavy petals and most of the strange colouring of its parent I. persica, but is larger and more vigorous, and it seems as though it may take the place that persica has held so long, though so precariously, in the garden. In another part of the exhibit the creamy white of Narcissus triandrus albus made an interesting combination with the dark red, waxy berries of Pachysandra terminalis. A number of iris species were shown, the two yellow Junos, bucharica and orchioides, beside a mass of dark violet reticulata and a well flowered clump of Iris stylosa.

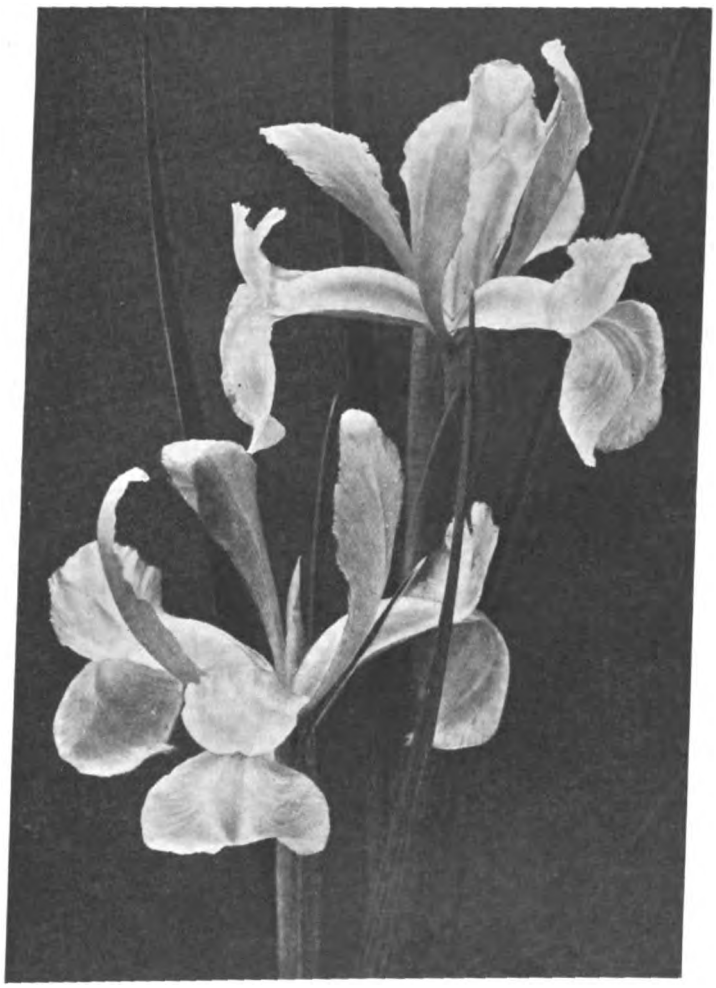
Messrs. Barr's collection was less conspicuous, but especially interesting in detail. They showed the new varieties of Crocus chrysanthus raised by Mr. Bowles, Snow Bunting, pallidus and a small pale type, all exquisitely formed globular flowers boldly feathered in blackish purple on a creamy or yellow ground. Crocus Adami was another newcomer to the garden, the bluest and one of the rarest of crocuses, that seems rather reluctant to open its long violet-blue buds. Crocus corsicus, rather like a minute Imperati, should find a place in the miniature rock garden. Another good plant was Iris stylosa var. speciosa, darker and slightly larger than the type, with a distinct peacock's eye on the fall.

Good specimens of Galanthus Elwesii showed their superiority to the common snowdrop in their large massive flowers, heavily marked with green, swaying on tall stems. This species seems to have become scarce since the war, and it is good to see it back again. A pale yellow hybrid of Helleborus orientalis, though rather greenish in tone, combined well with the deep purples and gave promise of the really pure sulphur yellow that would be a great acquisition to the group.

The exhibit of Messrs. Cutbush brought out the full value of some of the early-flowering shrubs. Cydonia superba var. Warleyi, in dull orange red, was grouped with a fine woody specimen of Hamamelis arborea, covered with its brownish yellow flowers, and the frosty white and dark green of Andromeda polifolia. They are three choice shrubs, and hamamelis has the special attraction of a curious, woody scent, faintly reminiscent of patchouli. A clump of the fine red form Brilliant of Tulipa Kaufmanniana was also shown, but its colour will be fuller in the open next month.

Messrs. Cheal showed a large group of the vigorous and beautiful Crocus Sieberi, with C. biflorus pusilla and Eranthis cilica, neater and more distinguished than the common winter aconite, with large pale yellow flowers and fine cut foliage.

An exhibit which excited much enthusiasm among those who are artistically and botanically inclined was that arranged by Miss Willmott. It consisted of a very fine collection of crocus drawings by Mr. Champion Jones. They were well executed, combining grace of line and botanical accuracy which is rarely found in drawings of this class. The exhibit deservedly gained a silver medal. A rapid survey of the drawings brought the realisation of the many wild species of this genus which can be had in flower in winter even around London.



THE BLOOMS OF IRIS WEDGEWOOD. A NEW EARLY FLOWERING VARIETY.

By the fine exhibit of rhododendrons of Messrs. Gill and Sons of Falmouth the mildness of the Cornish climate was again brought home to one. The blooms were in good condition, hybrids of L. Nobleanum, specimens of Cornubia with deep blood red flowers. This latter is a hybrid of R. Thomsoni, and it maintains all the good points of this species. White trusses of R. argenteum were present, but were showing the effects of their long rail journey. It is pleasing and stimulating to catch a glimpse of trusses of rhododendron bloom at this time. It is a genus which as the years go on will probably come more and more to the forefront of the horticultural world, and the pioneer raisers of the family deserve every credit for their untiring efforts to prove its worth in our gardens.

Among the other exhibitors were the following:

Carnations.—Messrs. Allwood Brothers, C. Engelmann and Stuart Low and Co.

Cyclamen.—Messrs. Stuart Low and Co., Caledonian Strain Floriculturists.

Fruit.—Messrs. J. C. Allgrove, Messrs. Waterers, and Westmacott Co., Limited.

Greenhouse Plants.—Messrs. L. R. Russell, Limited.

Orchids.—Messrs. Stuart Low and Co.

Rhododendrons and Hippeastrums.—Messrs. R. Gill.

Roses.—Mr. Elisha J. Hicks.

St. Brigid Anemones.—Messrs. Reamsbottom and Co.

Shrubs.—Orpington Nurseries Company.

Shrubs and Alpines.—Messrs. Bakers, J. Cheal, Carter Page and Co., William Cutbush, G. Reuthe, Skelton and Kirby, and F. K. Wood.

Artists.—Edith A. Andrews, Maud Angell, N. Blacklock, Agnes Foreman, Winifred Walker, Ellen Warrington and Mrs. Russell Walker.

Coloured Photography.—Messrs. T. B. Latchmore and Sons.

Garden Architects.—Mr. Percy S. Cane and Miss Evelyn N. Cowell.

Garden Books.—"Country Life," Limited.

Garden Contractors.—Johnstone Garden Contractor Company.

Horticultural Sundries, Tools, etc.—Alice L. Barker (bowls), Ashstead Pottery, Limited (china bowls), Chase Continuous Cloche Company (adaptable plant protectors), Carter (labels and insecticides), A. Everitt (gardening gloves), Thomas Gunn, Limited (tools), House and Garden Sundries Company, Limited (rubbish destructor and sundries), J. Jardine (Médoc and Guienne secateurs), London Garden Florists (bowls), Radium Fertiliser Company (fertilisers), Mrs. E. Torkington (Wizard plant labels), "Socleano" Limited (labels), Fraser, Treleaven and Wilkinson, Limited (flower-pots), Charles H. Pugh, Limited ("Atco" motor mowers), Miss Moutray Read (aprons), Walkers (fruit tree protectors), H. J. G. Wood (Willmott plant supports), William Wood (sundries and tools) and Ymagynate Pottery (china bowls, etc.).

NEW & RARE PLANTS.

IRIS WEDGEWOOD.—This hybrid is an early-flowering variety for market purposes. It was evident from the blooms shown that the plants are of good habit and growth. The flowering-stems varied in height from 2ft. to 2½ft., and carried a single large flower. The flowers were of varying shades of blue, blue-purple in parts fading to more delicate tints, stained with yellow down the centre of the falls. In this way, probably, the blooms lacked vividness. Nevertheless, it is a variety with undoubted merits as a decorative plant. It was obtained by crossing Iris tingitana with an early-flowering form of Iris xiphium, and while the hybrid has retained the robust and hardy constitution of its Spanish parent, it has not lost the early-flowering character of the other. It will prove a useful variety for obtaining cut flowers at this season. Award of merit. Shown by Messrs. Lowe and Shawyer, Uxbridge.

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CROCUS CHRYSANTHUS BUMBLE BEE.—Unlike so many other forms which have been raised by Mr. E. A. Bowles, and which bear the varietal name of a bird, this one bears the name of an insect, and it is indeed aptly described. It varies from the type in being a yellow form with a greyish throat and tube. The interior is of a satiny yellow, while the outer segments are suffused with purple or brown. It is a dainty form and when half open the inner segments resemble the golden bands found on the body of a large bumble bee. Award of merit. Shown by Mr. E. A. Bowles, Myddleton House, Waltham Cross.

CARNATION HERCULES.—Well shaped blooms of a scarlet colour and of good substance borne on tall, stiff and wiry stems were the characteristic features of this variety. The calyx has no tendency to burst. Unfortunately, there is little fragrance in the flower. It is a variety which should prove useful from a decorative point of view, especially for the table, as its colour is one which will give good effects against a white background. Award of merit. Shown by Mr. George Carpenter, Byfleet.

ORCHIDS.

CYPRIPEDIUM MRS. WILLIAM PICKUP (Alcibiades × Thisbe).—A vigorous plant bearing a large flower of very pretty qualities. The dorsal sepal flushed with purplish rose colour, stained on the basal area with brown, and having the upper part pure white, the margin being effectively crisped; lateral petals and labellum well developed, honey yellow in colour, tinged with reddish brown. Shown by Dr. F. Craven Moore, Victoria Park, Manchester. First-class certificate.

AWARDS OF MERIT.

ODONTONIA NESTA (Odontonia Gladys × Odontoglossum St. George).—A promising seedling with an erect spike of three medium-sized flowers, in formation showing the miltonia habit, derived through M. Blueana, a component of the former parent. Segments blotched with crimson-rose, the broadly developed labellum having some brownish markings on the basal area. Shown by Messrs. Charlesworth and Co., Haywards Heath.

ODONTOGLOSSUM CERAMIC (Watsonii × eximium).—This handsome hybrid carried a spike of fourteen large flowers, the broadly displayed sepals tinged with yellow, the petals whitish, and all the segments effectively marked with chocolate red blotching. Shown by Messrs. J. and A. McBean, Cooksbridge, Sussex.

BRASSO-CATTLEYA BIANCA VAR. AURAMINE (B.-C. The Baron × C. Mendelii).—A useful addition to the Brassavola section. The two flowers borne by this plant were unusually large, white, except for a slight tinge of pink, the expansive labellum deeply fringed at the margin and with an orange-yellow throat. Shown by Messrs. J. and A. McBean, Cooksbridge, Sussex.

SANDER MEDAL.—In commemoration of the valuable services rendered to horticulture by the late Mr. H. F. C. Sander, the firm of Messrs. Sanders, St. Albans, presented to the Royal Horticultural Society the Sander Medal, to be awarded annually for the best greenhouse novelty of the year. For the year 1924 it has been awarded to Mr. G. F. Moore, Chardwar, Bourton-on-the-Water, Gloucestershire, for raising Cypripedium Doris Stanton, exhibited on December 2nd, when it received a first-class certificate.

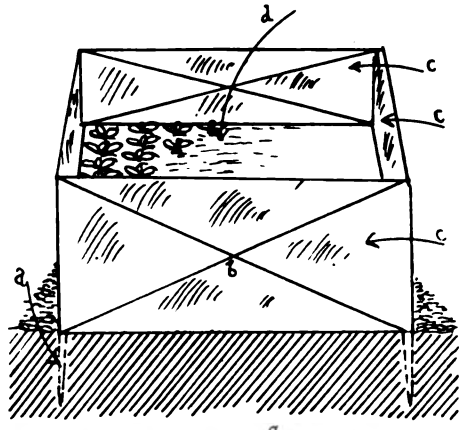
SIMPLE GARDENING

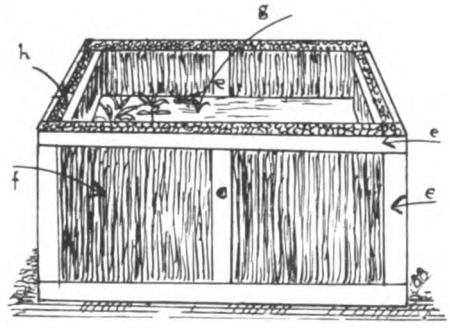
FORCING STRAWBERRIES.

THE first ripe strawberry is always much appreciated, especially if we grow it in our own greenhouse. Of course, the only way to ensure success with the plants is to pot good runners in due time, as soon as runners are available after the fruit is gathered in the open beds. Such potted plants have been wintered outside and are now available for forcing. I refer to gentle forcing, as plants subjected to heat earlier in the season are now bearing fruits which will soon be red. We will presume that only fifty plants in pots are to be forced; these should be subjected to the artificial heat of a greenhouse in various batches to prolong the supply of ripe berries, and not all at one time. A nice strong plant, possessing a plump crown, will bear at least half a dozen large, and as many medium, sized berries. First, see that the drainage is clear and that all weeds and side shoots are removed before the pots are placed on the shelf in the greenhouse. From the time that the plants are placed under glass to the date of ripening berries, the soil must never be allowed to become dry. Directly the young berries are formed, weak liquid manure should be applied at every watering, but clear water only after colour shows. When in flower tap the trusses daily with the fingers. On every fine day syringe the foliage to prevent the spread of red spider. Bring in the succession batches every fortnight.

SIMPLE SHELTERS.

In a few week's time it will be necessary to transfer many plants from greenhouses and warm frames to cooler quarters. I am referring, mainly, to summer bedding-out plants, to spring-rooted cuttings, seedlings of half-hardy annuals, young onions, leek and cauliflower plants and to the various batches of chrysanthemum plants which would soon spoil if retained much longer in a greenhouse temperature. The difference in temperature between that of the greenhouse and the open air is too great for the well being of young plants at the season of the year referred to—mid-February to mid-April. Amateur cultivators do not, as a rule, possess any spare frames with





glazed lights to devote to the kinds of plants above referred to and they will find the simple plant shelters, as shown in the sketches, very useful for the purpose. In one of the largest gardens in this country a huge straw frame was used for many years with great success. Every spring it contained many hundreds of plants and, during the summertime it provided just the right shelter needed by the roots of azaleas. It is made of dressed straw, firmly packed in a framework. A more temporary plant shelter is one of canvas stretched to stakes as shown at *a*; *b*, cross laths; *c*, *c*, *c*, canvas; *d*, plants. Letters *e*, *e*, *e*, *e*, show framework; *f*, straw; *g*, plants; *h*, shows the ends of the closely packed straw cut off level, the straw sides being 4ins. thick. Mats or canvas would form a suitable covering at night.

CALCEOLARIAS, CINERARIAS, PRIMULAS AND CYCLAMEN.

The three last-named kinds of plants are now flowering profusely in our greenhouses and conservatories and the first-named will augment the display in the course of a few weeks. Rotted manure is often included in the potting composts and, in some manures, especially that taken from pastures where cattle graze, white grubs are found; some plants collapse suddenly just when they are approaching the flowering stage; this happens to calceolarias, but mostly to cinerarias and primulas. Many grubs breed in the compost, from a previous state, after the potting has been carried out, and eat the roots; one or more will enter the stem of the plant, eating its way upwards and directly the grub reaches the point just above soil level the plant droops and dies suddenly. These grubs are not always confined to cow manure, but may be found in various soils used for potting purposes. If a fine wire or a needle be driven through the stem of the plant in several places near its collar, the moment any drooping of leaves is noticed, when such drooping, distressed appearance is not caused by over, or under watering, the grubs may be killed in the stems. I have frequently killed them so and not damaged the plant by the piercing of the stem. The roots of these plants are soon injured by over-feeding, and amateurs are sometimes guilty of over-feeding through eagerness in attempting to beat records as regards big flowers. Always apply stimulants in a very weak state and not more frequently than twice a week. Calceolarias, from the present date to May, thrive well on a cool base. Old, well washed ashes or gravel will answer the purpose; spread them on slates where there are wood stages.

GEORGE GARNER.

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CORRESPONDENCE

RHODOSTACHYS ANDINA.

SIR,—It may interest your correspondent, Mr. McMullen, that I have in a south garden here (East Cornwall) three plants which exactly tally with his photograph and description of his Rhodostachys andina. Mine have two botanical names, Pourretia or Dyckia frigida. They are in flower now (January 20) as they usually are at this time of year. They have been here for about twelve years, but I do not know where they came from, but think that they must be closely allied to the plant that he mentions. I have also in the same garden on a south wall Lassiandra macrantha and Luculia gratissima, the latter just coming into flower.—MOUNT EDGCUMBE.

SIR,—I was greatly interested in the excellen picture of Rhodostachys Andina which figured in your issue of January 17th. It is a very interesting class of plant and one that always arrests attention, especially when in flower. It is quite a small genus, six or seven species being described. They are natives of Chili, Columbia and Guiana. We have two large plants growing in the rockery in these gardens. They were given to Mrs. R. C. Bainbridge by the late Mr. Wyndham Fitzherbert, who was an interesting contributor to THE GARDEN. These plants have been in their present position about ten years and for the first time one of these plants produced two flowers last September and remained in bloom for a considerable period. The description given by Mr. McMullen of his plant R. Andina is precisely the same as those growing here. I sent a plant to the Curator of Kew, he named R. Pitcainiæfolia. I also wrote to Mr. W. R. Dykes, Secretary of the Royal Horticultural Society about it. His reply was that it rarely flowered in the open air in this country, although it had been reported to have flowered in the South of Cornwall. But at Tresco Abbey, Isle of Scilly, it frequently blossomed. The old inflorescences are still intact on the plant, but the leaf spikes surrounding it have resumed their natural green.—F. W. RICH, *The Gardens, Ffordleigh, Plympton.*

VEGETABLE SEEDS FOR A SMALL SUBURBAN GARDEN.

SIR,—Mr. J. Comber is quite right (page 38). I do not mind, in the least, honest criticism, and am always willing to reply to it. I only write from practical experience, an experience extending over forty years. Obviously, it is not possible to enter into all detail treatment is such short notes as those in "Simple Gardening"; detail treatment is embodied in articles which appear in THE GARDEN from time to time. I try to give a lead or guide to inexperienced cultivators, and intelligent readers will use their discretion as Mr. J. Comber does. Very few owners of small gardens will grow all the kinds named in the table referred to; each one will make a selection, growing those that are liked best. In the table one kind is named, but it does not mean that only one variety is to be grown; for example, several varieties of celery may be grown: this means as many packets, and the aggregate should not exceed half an ounce. The same applies in the case of broccoli and cauliflowers, several varieties of each to ensure as long a supply as possible. It does not follow that all seedlings raised are planted finally. Pea and bean seeds are often sown too thickly these resultant plants podding where raised; for this reason I say 1 pint of early pea seeds will sow a row 50ft. long and 1 pint of main-crop a row 60ft. long, as the latter require more space—this is a guide. But it is news to me that globe artichoke plants from seed will attain to a size sufficient to cover a space 6ft. wide in one season My plants measure about 2ft. in width after one season's growth. Seeds of these often fail to germinate sown outside, as amateurs generally must sow them, and from the 1 oz. of seed probably there would not be a surplus of plants available for the owner. I congratulate Mr. J. Comber on the excellency of his soil. One wishes to grow a score of plants of a certain variety of cauliflower, and one must buy a tiny packet of seeds of that variety, and in it, most likely, there are 400 seeds. Well, one cannot eat half a sheep without killing a whole one.—GEORGE GARNER.

BERBERIS NEPALENSIS.

SIR,—The illustration below of Berberis nepalensis may be of interest to many readers of THE GARDEN. The plant has formed a beautiful bush 10ft. in height and about 14ft. across, and when it was at its best was laden with 180 flower spikes. These were, on the average, about 9ins. long. The plant is now twenty-five years old and has kept its bushy habit remarkably well. It is growing in the garden of Mr. J. Ellet Lake, Glencoe, St. Leonard's, Exeter. It would be interesting to discover if any readers of THE GARDEN have seen a bush approaching this size.—PETER VEITCH.

A VERY STRIKING BUSH OF BERBERIS NEPALENSIS LADEN WITH FLOWERS.

COLOURS IN HYDRANGEAS.

SIR,—When I wrote to you recently (December 13th, 1924, page 837), regarding colours in hydrangeas, I relied entirely upon my memory, but upon referring to the work done by Professor C. H. Connors, Assistant Horticulturist of the New Jersey Agricultural Experiment Station, I find that the simple statement I made regarding the use of lime must be qualified so that your readers may not use too heavy an application of the wrong form. Too much lime, if in a caustic form, causes chlorosis, due to the precipitation of the iron salts in the soil solution, these iron salts being necessary to the formation of chlorophyll. Plants will become yellow and stunted in growth, also root injury results when heavy applications are made.

By taking a lesson from the pink hydrangeas grown in England in chalk soils, experimental work was conducted which demonstrated that the form of lime to use was important. Ground limestone, unburnt limestone, can be used in large quantities with safety—10,000 pounds to the acre have been used without any perceptible deleterious effects—but a slight excess in the soil of hydrated or slacked lime causes chlorosis. Caustic forms of lime may be used provided only enough is used almost, but not quite, to cause an alkaline reaction.—PARKER T. BARNES, *Harrisburg, Penn, U.S.A.*

ROSE TRIER.

SIR,—May I briefly supplement the article on Rose Trier appearing in your issue of January 10th, as "Claremont" seems to be at fault with regard to its origin and (judging by his remarks) the source and pronunciation of its name? As to the latter, I remember that many years ago, when I was discussing this particular rose with Mr. A. Paul in his old nurseries at Waltham Cross, he corrected me and gave me some account of its story. R. Trier is a hybrid musk, and was raised by P. Lambert and sent out three or four years after his masterpiece, Frau Karl Druschki. Although it is true that, as "Claremont" states, "this rose is always endeavouring to bloom," its *rightful* (his epithet) name has no connection with the English word try. P. Lambert christened his rose after the ancient town of Trères, or Trier (to give it its Prussianised form). I grew the rose for many years, but it never reached with me more than 5ft. to 6ft. in height. As is the case with several other so-called pillar roses, I fancy R. Trier is more beautiful and effective if grown as a large bush and allowed to develop at will, any necessary supports being given as required.—A. N., *Surrey.*

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GARDENING OF THE MONTH

FLOWER GARDEN.

DAHLIAS.—Prepare site by bastard trenching the ground.

HERBACEOUS BORDERS.—If weather suitable, finish planting and renovation work. Replant delphiniums if overgrown. Top-dress old plants of Gypsophila paniculata with a compost of equal parts of loam, old mortar rubble and sand.

RANUNCULUS.—Plant at end of the month. Place claws downwards, cover with sand and 1in. of soil.

ROSES.—Hoe the beds. Give a dressing of manure to those beds which were not fed in the autumn. At the end of the month take down climbing roses and cut out dead and worn-out wood. Re-nail securely. Finish planting if ground is in good condition.

FRAMES.—Pinch out centre of violas and calceolarias. Remove decaying matter and stir the soil.

HARDY FRUIT.

APRICOTS.—Prune, train and top-dress, using compost of four parts loam, one part lime rubble and sand.

BUSH FRUIT.—Plant or transplant currants and gooseberries. Fork in between established plantations and mulch with farmyard manure. Take more cuttings if required. Net the bushes, if possible, or spray with quassia extract to keep off the birds. Make firm all autumn-struck cuttings.

CHERRIES.—Prune Morello cherries if not already done. Top-dress the borders.

FIGS.—Remove the protection if weather favourable. Prune and thin out superfluous branches.

GREASEBANDS.—Examine and replenish if necessary.

PLANTING.—Finish soon. Tread firmly trees planted during the autumn.

PRUNING.—Complete soon. Slightly prune autumn-planted trees which have rooted.

RASPBERRIES.—Cut back newly planted and autumn-fruiting canes to within 6ins. of the ground.

SPRAYING.—Continue using caustic alkali.

NUTS.—Spur prune and shorten the leaders. Keep the centre of the bushes open.

VEGETABLES.

HERBS.—Lift perennial kinds and transplant in fresh ground.

JERUSALEM ARTICHOKES.—Plant out in well prepared ground.

LETTUCE.—Plant out cabbage lettuce on a hot-bed.

PARSNIPS.—Sow on well prepared ground which was manured the previous season.

POTATOES.—Plant out sprouted tubers in a warm situation. Rub off weak shoots. Set up in boxes another batch for sprouting. Use early immune varieties.

RHUBARB.—Cover some of the crowns with pots or boxes. Place stable litter on top and completely cover with leaves. Divide and replant overgrown crowns in well manured ground. Plant 3ft. apart.

SHALLOTS.—Plant out as soon as ground is dry enough.

SOWINGS.—In the open ground on a warm border sow broad beans, onions, spinach, early round-seeded peas, early varieties of turnips and carrots. In frames in boxes sow early cauliflower, summer cabbage, leeks and Brussels sprouts. On a hot-bed sow carrots, turnips and onions. Scatter lime over the soil in each case before sowing.

SHRUBS AND TREES.

PRUNING.—At end of month cut back straggling branches of arbutus, clerodendron, euonymus, myrica and rhus. Cut back to the old wood at the end of February buddleia, Hydrangea paniculata, sambucus, tamarisk, Spiræa japonica and S. Aitchisonii. Trim slightly, to produce compact bushes, caryopteris, choisya, cotoneaster, hypericum, olearia, rhododendron, and stephanandra.

FLOWERS UNDER GLASS.

ACHIMENES.—Place rhizomes in boxes of leaf-soil and sand. When growths 2ins. long, pot up.

ANNUALS.—Feed those in pots. Sow in pans asters, larkspur, East Lothian stocks, verbena, salpiglossis, nicotiana, lavatera, Phlox Drummondi, Statice Suworowi, etc., and make further sowings of antirrhinums, sweet peas, alyssum and pentstemons. Prick off into boxes soon.

BOUVARDIA.—Bring out those resting. Shake out and pot up. Strike cuttings in mild bottom heat, using a peaty compost.

BEGONIAS.—Prick off into pans and return to propagating case. Later prick off again and place on a shelf in a temperature of 60°.

BULBS.—Keep temperature moderate, do not force too hard. Bring in potted gladioli from the plunge at the end of the month. Feed freesias after flowering and then dry off the bulbs.

CALCEOLARIAS.—Dust with tobacco powder to keep down aphis. Keep conditions cool. Start into growth those in store during the winter. Shift herbaceous calceolarias into larger pots.

CARNATIONS.—Take more cuttings, bottom heat essential for striking. Pot, in equal parts of loam and leaf-soil and little sand, immediately cuttings struck. Wash off sand attached to roots when removing from propagating case. Re-pot at end of month, using a compost of three parts loam, one part flaky leaf-soil, and little burnt ash and lime rubble. Pot border carnations.

CHRYSANTHEMUMS.—Take more cuttings. Strike cuttings from border varieties now in frames. Pot on young plants, using more loam at each shift. Keep temperature 50°–55°.

CINERARIAS.—Feed and fumigate. Stake the stellata section.

CYCLAMEN.—Keep fairly dry and temperature 50°–55°. Pot on when ready.

DAHLIAS.—Bring out from store. Set in boxes in a warm house. Sprinkle soil among tubers. Propagate by cuttings from the ensuing growths. Take cuttings with a small heel and place in a propagating case with bottom heat. Do not cover case with glass. Sow seed in pans and later transfer to small pots.

DIANTHUS.—Sow seed in pans, place in gentle heat.

FERNS.—Divide and repot. Slightly loosen the ball of soil.

FUCHSIAS.—Take out from resting place old plants, pot up and syringe. Take cuttings from the young growths, give them a little bottom heat. Pot on young plants in 6in. pots. Do not pinch.

GLOXINIA AND STREPTOCARPUS.—Sow seed, place in bottom heat of 65°–70°. Prick off when ready and guard against damp. Handle carefully as leaves are very brittle.

HIPPEASTRUMS.—Re-pot or top-dress. Pot up offsets and plunge in bottom heat of 60°. Water carefully.

HYDRANGEAS.—Pot on young plants. Start H. paniculata into growth. Prune hard back and introduce into heat.

LOBELIA CARDINALIS.—Take out of storage, divide, pot in small pots. Place in a heated pit and later remove to a cold frame.

PETUNIAS.—Sow in pans in a warm house, prick off when fit to handle and shade from sun.

PELARGONIUMS. — Strike cuttings from winter-flowering varieties and place in a started vinery. Give final potting to summer-flowering pelargoniums. Pot firmly. Pinch Regal type.

PERENNIALS.—Propagate by cuttings phlox, delphinium, aconitum, etc. "Hollow-stemmed" subjects need heat to strike the cuttings.

ROSES IN POTS —Prune hard back those potted last year. Ventilate carefully and guard against mildew. Spray with "Abol" to keep down pests.

SHRUBS FOR FORCING.—Keep temperature 55° at night. Syringe until flowering begins.

SUMMER BEDDING. — Agathea cœlestris: Strike cuttings now in heat. Abutilon: Shake out old plants, start into growth, and take cuttings from the young shoots. Heliotrope: Prune back spurs on standards, syringe and water and place in gentle heat. Salvia: Sow seed or strike cuttings. Acacia lophantha: Sow seeds in heat and prick out soon. Dracæna australis and Grevillea robusta: Sow seeds in heat. It will take two years before either of these are ready for bedding. Cineraria maritima: Sow in heat. Take cuttings of ageratum, verbena and eupatorium.

SWEET PEAS.—Pot on those sown during the autumn. Stand in a cool, airy house. Pinch back growths after a few days.

FRUITS AND VEGETABLES UNDER GLASS.

FIGS.—Thin young growths.

MELONS.—Top-dress seedlings. Prepare beds of fermenting materials over the pipes. Place a small quantity of brick rubble over this, then three layers of turf and on top a mound of compost consisting of loam, lime, rubble burnt ash and charcoal. Complete beds in the house two days before planting. Never let temperature go below 65° at night. Keep floor and walls damp.

PEACHES AND NECTARINES.—Keep atmosphere dry when flowering. Pollinate with rabbit's tail at midday. Fumigate with nicotine to keep down aphis. Syringe when flowers set and damp down. Disbud young growths as they come away. Remove all shoots pointing to the wall or to the front. Leave growths which break at the base of the present fruiting wood.

VINES.—Disbud growths of early vines, leaving two shoots at each spur. Cease syringing when growths 9ins. to 12ins. long, but continue to damp down. Raise temperature to 65°. When flowering keep temperature 70° at night and the atmosphere dry. Start the muscats by closing the house and syringing.

STRAWBERRIES.—Bring in another batch to form a succession. Discontinue syringing as they come into bloom. Pollinate artificially. Give soot water and artificials in weak doses.

ORCHARD HOUSE.—Start into growth by closing the house for one week. Do not excite the buds. In ten days raise the temperature to 45°. Syringe until the trees are in bloom. When flowering give dry conditions and more heat. Pollinate artificially.

CELERY.—Sow in boxes, place in warm temperature. Prick out in fairly rich compost and keep near the light.

CUCUMBERS.—Pot on, only half fill the pot. Top-dress in three weeks time. Keep temperature high and atmosphere moist.

DWARF BEANS.—Pot up in fairly rich compost.

MARROWS.—Sow in 3in. pots during the first week. Temperature 65° at night. Place near the glass when germinated.

MUSHROOMS.—Make up fresh bed.

POTATOES.—Top-dress and stake those in pots.

SEEDLINGS.—Prick off into boxes cabbage, cauliflowers, onions and leeks.

TOMATOES.—Prick off into boxes containing a sandy compost. Grow sturdily.

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OUR SEED NUMBER

THIS is a special number of THE GARDEN devoted to plants catalogued in those elaborate lists issued by seedsmen throughout the country. For every gardener this is the most important time of the year, when these lists are p red over and the merits or demerits of plants and varieties listed are discussed, for, however much of a specialist you may be, these lists catalogue the solid backbone of a garden, the vegetables to eat and the flowers for massed effect and for house decoration.

I should like here to give credit to those to whom credit is due, the seedsmen, for it is largely owing to their zeal and skill and courage that our gardens are what they are to-day. No doubt this has been said thousands of times before and infinitely better said than I can, but I can speak from an amateur's point of view with the additional advantage of having had a peep behind the scenes. Few people realise the labour that is involved in a seedsman's business, the constant testing of seeds, the improvement of strains, the care taken in cleaning and packing the seeds, the organisation required for distribution, the long hours spent in making the catalogue as perfect as possible. I will state frankly that only a year or two ago I scoffed at the number of new varieties that were constantly coming on the market, but I see now that introductions of new strains are a necessity. For one thing people are inquisitive and demand something new, which brings one again to the question of supply and demand. Another reason, and the main one, is that the constant aim at improvement is the main antidote against slackness and retrogression, both in the plants themselves and in those who sell the seed. If the same varieties were placed on the market year after year, not only would there be deterioration in quality, which certainly occurs in plants of such complicated parentage as most of our garden vegetables and flowers, there would be little or no competition among the growers, which in time would just as certainly bring about carelessness in selection. As it is, our seedsmen have a right to feel proud of themselves, for the quality of the goods they sell is unrivalled throughout the world. Everyone who has friends living abroad hears of this again and again.

An American wrote the other day that, although he had travelled all over the world and was passionately devoted to plants of all kinds, those which lingered in his memory were the sweet peas, and the stocks, and the hollyhocks, and the roses, that he saw in this country. He said that they looked better and smelt better and were more satisfactory than in any other part of the world.

I think that is fair praise and that on the whole we are successful gardeners, but there is such a thing as having too much of a good thing. In gardening, as in everything else, it is the ordinary solid gardener, who works away quietly, who is the backbone of the profession. A friend told me the other day that she objected to amateurs showing at horticultural shows and refused to show plants herself, for it meant that unless the gardeners were exceptionally broad-minded and level-headed a plant or a few plants would be nursed and coddled to the exclusion of all others. There is a great deal of truth in what she says, for gardening should not be a selfish profession, still less a selfish hobby.

Annuals by their very profusion are accustomed to be treated too light-heartedly. To be a really successful raiser of annuals requires just as much skill and attention as any other plant in the garden, which is a point that is not often realised. Frequently, annuals are used as a last resort to fill up awkward spaces in gardens. Although they are useful in this respect, yet their use should always be part and parcel of the original planning for effect in a garden, and a generous amount of ground should be allowed for their cultivation.

I can only hope that this will be a more successful gardening season than 1924 and that we may catch an occasional glimpse of the sun. At any rate I wish everyone the best of luck with their gardens.

E. H. M. C.

NOTE

The Council of the Royal Horticultural Society have asked Fellows to give their opinion on the Sunday opening of Wisley, on a post card which is inserted in the book of arrangements. We hope that Fellows will not overlook this post card in the more congenial occupation of making their selection from the list of surplus plants, and will give as their opinion that Wisley shou'd be opened to Fellows on Sundays.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

MODERN LUPINS.

THE UPKEEP OF A LAWN, by Reginald Beale.

EAST LOTHIAN STOCKS, by W. F. Rowles.

HOW TO HAVE AN EARLY FLOWER GARDEN, by Helen Colt.

REPORT OF THE ROYAL HORTICULTURAL SOCIETY'S FORTNIGHTLY MEETING.

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SOME FAVOURITE ANNUALS

IN a book on general gardening, written for the guidance of the novice, the writer warned his readers against the sowing of many annuals, which often, he said, have a brief season, quickly become unruly, tumbling over their neighbours and, especially, injure the more valuable perennials by trailing over them.

As may be imagined this was written well over a quarter of a century ago, when hardy annuals generally were the Cinderellas of the garden, and, unlike the heroine of the fairy tale, had no godmother to arrange even a brief hour of triumph. Slightly to paraphrase "'Twas true, 'tis a pity; 'tis a pity, 'twas true." But, here, the writer confused cause with effect. One can easily imagine the annuals of his day. Nearly always they were sown far too thickly and were rarely thinned. Under such conditions small wonder that their flowering season was short and that the plants tumbled about.

Given fair treatment there are many hardy annuals that are most valuable border plants, for they produce a succession of delightful flowers which add immensely to the border effect and they are also invaluable as cut flowers. But it is not sufficient simply to rake over a piece of ground and scatter a few seeds. The soil preparations should be just as thorough as for any other type of plant.

As a rule the best results are obtained when the seeds are sown in pans or boxes in moderate heat early in the spring—from the end of February onwards is a good time—and after having been pricked off singly, and duly hardened, are planted out permanently during the latter part of May. While

NO GARDEN IS COMPLETE WITHOUT CHINA ASTERS.

FEW PLANTS ARE MORE EFFECTIVE THAN GODETIAS.

under glass, abundance of fresh air should be given, whenever the weather conditions permit, otherwise there is a danger of the seedlings damping off.

When facilities do not exist for raising the plants under glass, excellent results may be obtained from seed sown in their flowering positions, provided the seed is sown thinly and the plants are rigorously thinned out at intervals until they are finally planted out quite a foot apart. From the middle of March to the end of April will be found to be the best time for sowing annuals out of doors for summer display.

Sowings for succession of bloom are often recommended; this is the counsel of perfection, but it requires more garden space than can usually be afforded. It should be borne in mind that seed-bearing is the end and aim of a plant's existence and that when seeds are formed there is no further need for flowers. Therefore, to prolong the flowering season, the seed vessels should be removed as soon as they are seen.

Clarkias and godetias are becoming increasingly popular, and as they have much in common, they may well be considered together. Both flowers fall naturally into two sections. The tall varieties bear their flowers in long, loose sprays and become 2ft. or more in height, while the dwarf type are of more formal habit, flowering in denser clusters, and these grow about a foot high. No one who has seen the long rows of dwarf godetias in the seed trial grounds at Reading, Raynes Park and elsewhere could fail to be enchanted with the glowing masses of satiny blooms of all possible shades of colour. Such plants as these are only to be obtained when each individual is allowed quite a foot of space. The tall varieties of both clarkia and godetia may be planted a trifle more closely together, though if their graceful sprays of lovely flowers are intended for cut blooms they should not be overcrowded, as the cutting tends to induce branching and consequently more dense plants.

Although they are closely allied, it will generally be found that the clarkias prefer a more moist situation than the godetias, though both will thrive in any good garden soil.

Formerly it was becoming the fashion to give varieties of annuals distinctive names, generally those of famous persons,

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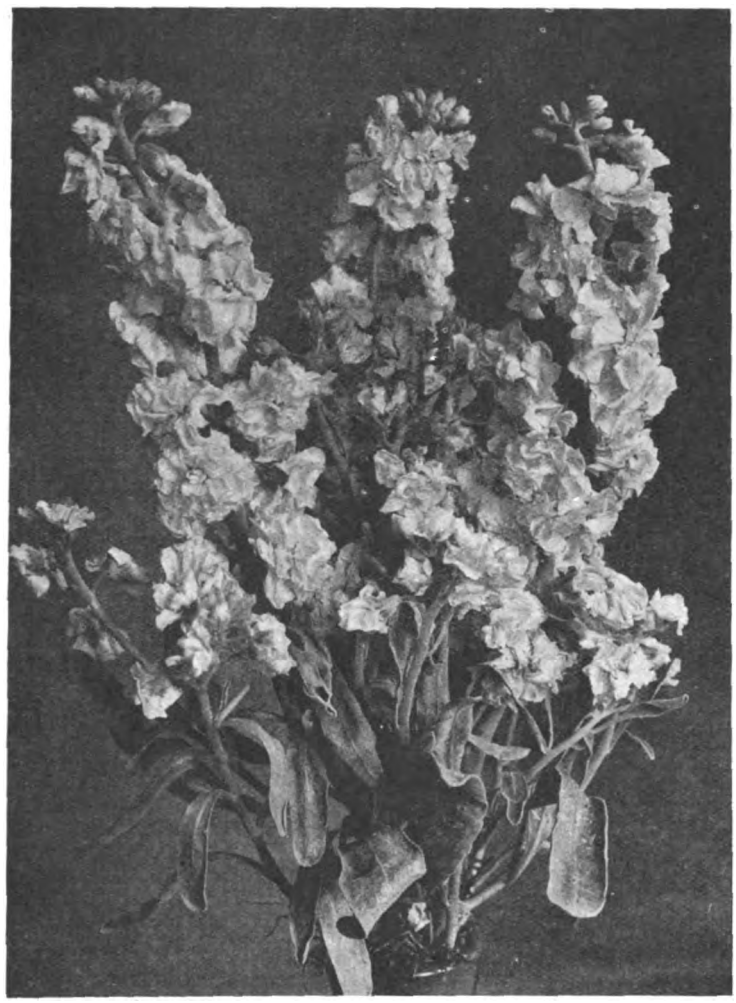
but more recently the saner method of listing the varieties under their colour name has become the vogue, and one may order the particular shades of colour required in full confidence.

Among recent novelties there are several clarkias well worth growing. Webbs' Double Rose is especially valuable and is even more beautiful as a cut flower than when growing in the garden. Carters' Brilliant Princess is another good double-flowered variety and its well formed flowers are of a clear warm rose colour. Among the pulchella varieties, which are dwarfer and bear their flowers in clusters, Sutton's Brilliant Rose stands out as one of the very best.

Godetias provide even a larger choice and with these the association of two such sorts as Sutton's Double Rosy Morn and the dwarfer single, Mauve Queen, will be found particularly charming. Carter's New Lavender is one of the loveliest of the newer godetias; its long graceful sprays are regularly furnished with single flowers of most charming colour. Lady Albemarle, which is sent out by Messrs. Robert Sydenham, is a large crimson godetia of the compact strain. A desirable novelty among the godetias is the Whitney azalea-flowered type which Messrs. Barr and Son have sent out. The flowers have beautifully waved margins and have much the appearance of those of the Ghent azaleas.

Although they have nothing in common, many people almost naturally associate stocks with asters, but while asters seem to succeed with nearly everyone, often the stocks are only moderately successful. This partial failure may nearly always be attributed to the lack of lime in the soil, and the best form of applying lime for stocks is as lime rubble. The ten-week stocks are mostly grown and these must be raised under glass to obtain the best results, although seed may be sown in the open ground towards the end of April. When the seedlings appear the very robust ones should be discarded as they are always gross, single-flowered plants of no beauty. It will be found that it is the smaller seedling which has leaves curving towards the stem that will produce double-flowers in good compact spikes. In the very best of strains there are bound to be a certain proportion of single-flowered plants if all are allowed to grow. When planting out stocks care must be taken to disturb the roots as little as possible, so that there shall be no check to their growth. Recently some new shades of colour have been introduced into the ten-week stocks. The Queen of the Belgians, a delicate silvery lilac, and Mauve Beauty, both listed by Messrs. McHattie and Co., are excellent examples, while Webbs' Snowdrift is one of the best whites. For earlier flowering one must grow the old-fashioned Brompton stock, which is a biennial. Messrs. Barr and Sons are offering seeds of the Old English Scarlet, Cottagers' White and the new White Lady among their Brompton stocks. These will be found to be of most delightful fragrance and appreciably earlier than the ten-week varieties.



FOR EARLY FLOWERING, THE OLD FASHIONED BROMPTON STOCK.

There are now a great many types of China asters to choose from; though the old favourite Victoria aster is still grown in great numbers by the market gardener because its dwarf compact habit permits it to be readily transplanted even while in full bloom. This type has immense colour value for the garden, but those who prefer more graceful flowers will grow the ostrich plume and the single-flowered Aster sinensis, both of which may be had in a variety of most charming colours. As wet weather asters none is better than the giant ray varieties, which also are excellent as cut flowers. The Southcote Beauty single asters are particularly graceful. Webbs' semi-dwarf Comet asters are also of considerable merit both for the garden and the house. For those who prefer taller flowers, Barr's tall chrysanthemum asters are to be recommended. They grow quite 2ft. high and are of branching habit. As with stocks, it is best to sow the seeds in a gentle heat at the end of March, pricking off the seedlings as soon as they can be handled and finally planting them out at the end of May. Where there are no glass facilities, it is often found that the single-flowered varieties do best when sown out of doors at the end of April. A. C. B.

THE NEW DAHLIA-FLOWERED ZINNIAS

ZINNIAS are one of the showiest and most brilliantly coloured of all the half-hardy annuals. In an open, sunny position planted in good clumps or masses the vivid colours of the zinnias afford a very effective display, lasting from July until well on into the autumn. Within the last few years these flowers have increased rapidly in popularity and have been greatly improved; new types have been raised and a large variety of most beautiful colours is now obtainable. The new dahlia-flowered zinnias which received the gold medal and an award of merit at the R.H.S. last July are exceedingly effective and can be used either for greenhouse decoration, in beds or borders, and are excellent for cutting. Fortunately, they are of easy culture, and treated in the following way give most successful results.

Sow the seed thinly in boxes about the first week in March in a mixture of old turf and well decayed manure, two parts old turf and one part manure. When the old rotten manure is dry enough to crumble up when rubbed between the hands, it is in perfect condition for mixing with the soil. A little sharp sand must be added to the compost to keep it sweet and porous. Place the seed boxes or pans in a warm greenhouse, keeping the night temperature as near 60° as possible, allowing it to rise a few degrees during the daytime. Give the boxes a good watering through a fine rose and keep the atmosphere moist. It will take from five to seven days for the seed to germinate. Gradually dry up the atmosphere and only water when necessary. As soon as the seedlings are large enough to handle prick them off immediately (using

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the same mixture, as they damp very quickly, especially if the temperature is allowed to drop below 60°. The young plants should now be grown on in as light and airy a position as possible, guarding against cold draughts and over-watering. When they are about 3½ins. to 4ins. high, they should be strong and vigorous and ready for potting on into 3in. pots. It is advisable to keep to the same mixture, but pot fairly firmly with good drainage, as they make strong, fleshy roots and drink up abundance of water. From this stage there is not much fear of damping, as the growth is quite hard. In about a month or six weeks they will be ready for the final potting, which can be easily ascertained by turning out one of the plants. On no account must they be allowed to get pot-bound, for if this happens they form a premature bud. The aim must be to keep the plants growing on steadily. For the last potting use fresh loam, adding manure and sand in the same proportion as already recommended. This new giant dahlia-flowered zinnia is a very gross feeder, therefore it would be advisable to add a small 6o potful of Dobbie's Fertilizer or bone meal to every two bushels of the potting soil. Pot firmly and return the plants to a cool greenhouse. They will grow very rapidly in the new soil and make well shaped bushy plants about 18ins. across and 2ft. high. In hot, sunny weather they will require watering daily, and when the flowering buds begin to appear water every alternate day with weak liquid manure water and occasionally a little soot water. As a guide to beginners, during a spell of dull or wet weather it is a wise plan to rap the pots with the knuckles or a piece of wood. If the pots ring or sound hollow, the plants require water.

ZINNIAS IN VARIETY ARE INVALUABLE FOR A BRILLIANT DISPLAY OF COLOUR IN BEDS AND BORDERS.

The flowers open very slowly, but when fully developed are exceedingly handsome and of brilliant colours, ranging from cream, pinkish buff, rose, yellow, scarlet, crimson and orange and should be about 5ins. across and 3ins. deep. The blooms when cut last a long time in water and make an economical and handsome house decoration when arranged with their long stalks in glasses. Pot plants are equally effective, each individual bloom lasting about six weeks, thus every plant should give a brilliant display of flowers from two to three months and require no shading from the sun.

The zinnia, as well as being such a suitable decoration for greenhouse or conservatory, is also most valuable for planting out of doors in beds or borders. There is nothing, in my opinion, more effective than a large bed of dahlia-flowered zinnias either mixed or true to colour. The shades are so exquisite and brilliantly vivid that they attract the eye immediately

The seed for outdoor decoration should be sown about a month later than that for greenhouse work, as the zinnia grows very rapidly. By sowing too early they come on and are ready to plant out before all risk of frost is gone. They must on no account get a check while in the boxes, or they will run into flower, which will be detrimental to the constitution of the plant all through the growing season.

Anyone with a cool greenhouse sowing the seed the first week in April will have plants quite large enough to plant out the last week in May. The seed must be sown in light soil the same way as advised for pot work, but cover over the seed with a mixture of light soil and sand (half of each) if they are to be grown without any artificial heat. This will be a safeguard against damping, as the seedlings in their young stage are inclined to damp off. But if the house is kept on the dry side after the seedlings appear they will be quite safe, and after they are pricked off into the new boxes of fresh soil there should be no further trouble with regard to damping. The boxes should be placed as near the glass as possible and plenty of air given in the daytime in mild weather. For outdoor cultivation the plants break more freely if they are stopped once, say, ten days before planting out. They should be planted 18ins. apart each way for flower-beds and for planting in rows 18ins. from plant to plant and 2ft. from row to row. Zinnias do well in any good garden soil which has been dug in the autumn about 1ft. deep and enriched with a little farmyard manure. This should be forked over lightly in the spring and levelled. Light soil should be well tramped when in a dry condition in the same way as for an onion bed. After planting, it should be kept well hoed to prevent the ground from cracking until the foliage is large enough to shade the soil from the direct rays of the sun.

The zinnia comes into flower about the first week in July and continues to give a brilliant display till well on into the autumn. It is quite easily grown and anyone following the above instructions will be amply repaid. DONALD ALLAN.

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Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its Readers.

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SOME OF THE MORE UNCOMMON ANNUALS

FOR GARDENERS WHO WISH TO TRY SOME ANNUALS NOT OFTEN SEEN, THESE NOTES SHOULD PROVE OF VALUE. SOMETHING UNCOMMON CREATES AN ADDED INTEREST IN THE GARDEN.

"SOMETHING new" is ever the demand from the gardener, as from the rest of the world, and in the endeavour to satisfy this, fresh varieties of older flowers are pouring in a constant stream upon the market. An improvement in size or difference in colour, however, is only a variation upon the older, after all, and we would suggest that a far more hopeful avenue for exploration lies among the annual flowers and especially those that are not so commonly grown. Here, indeed, is a treasure-house, the key to unlock which consists of some yards of well tilled earth and a few shillings: for we will guarantee that you can obtain more "new"—new to you and your friends—flowers among the annuals than among any other class of plant. All annuals are divided into three classes—greenhouse, half hardy and hardy—and among each section we shall find species that just "fit the bill" as far as our present consideration is concerned.

Let us take greenhouse kinds first. These need a somewhat higher temperature than the half-hardy kinds—65° to 70°—and should be sown in February or March, great care being taken that they never receive a check. This may arise from two causes, lack of heat and attack by insect pests—due to lack of humidity in the atmosphere. These points should be well emphasised in the mind, because it is impossible to achieve success without adequate temperature and moisture where greenhouse annuals are concerned.

A quite unusual example of these plants that deserves to be well known is the tomato-fruited solanum, Solanum integrifolium—a rather tall-growing plant that makes a splendid display in a large house. The height is 3ft., and the flowers are followed by deep scarlet fruits shaped like the tomato, which last well on the plants as well as when the stems are cut for decorative purposes. A relative of this that might well be grown as its companion is the egg plant, Solanum Melongena, which may be regarded both from a decorative and a utilitarian point of view. From the decorative aspect the white variety is the most egg-like, but the Purple Round is the best for eating. The latter is very interesting and certainly crops earlier.

Still upon the subject of fruiting plants, do not overlook the gourds which, in a large house, may be used to great effect upon the roof and rafters. Especially striking among these is Lagenaria vulgaris, the bottle gourd, with its huge bottle-like fruits that hang so gracefully from among the handsome leaves. Another interesting form is Luffa cylindrica, the source of the loofah of the bathroom. This is a long tubular grower, which should be allowed to hang upon the vines until fully ripe and then cut and immersed in water until all the pulp has softened and can be washed away under a strong stream of water—there you have your loofah. Many of the small cucurbitas are also extremely decorative small gourds for roof coverings, and both these and the lagenarias may be grown outdoors by sowing later and hardening off. Hibiscus Manihot Sunset with its immense yellow flowers, 6ins. across, is another very handsome greenhouse annual of easy culture; while Torenia Bailloni with its bright golden blooms with brown throat is an unusual variant on the better known Fournieri.

Coming to the half-hardy annuals that may be raised in an ordinary greenhouse temperature by sowing in February and March, do not overlook the splendid new red miniature sunflowers, for these are most effective, both in the borders and when cut. The stems are long and the flowers produced in wonderful profusion, while the colour ranges from flesh pink to a deep coppery red. The height of the plant is 3ft. to 5ft., so that they are invaluable in mixed borders.

The tobacco is ever a popular flower, and grand subtropical effects may be produced with the variety N. sylvestris, which is certainly unusual. The foliage is of gigantic proportions, the flower stems reach a height of 3ft., and the long white tubular flowers remain expanded by day as well as night.

Calceolaria chelidonoides is a very easy plant to raise and makes a really splendid pot specimen of perfectly symmetrical form, smothered from base to tip with beautiful pale yellow flowers and pretty fern-like leaves that are perfectly distinct from the ordinary calceolaria. Sedum cœruleum is delightful as a pan plant and the seeds may be sown directly into this and, later, if required, the whole ball transferred to the open ground. The small fleshy leaves assume a lovely reddish tint when exposed to the sun, while heads of pale blue flowers form a very striking contrast. The Santa Barbara poppy, Hunnemannia fumariæfolia, though not strictly annual, responds to treatment as such and is a very beautiful plant. The foliage is greyish and finely cut, and the large orange flowers, that last well when cut, are superb.

Outdoors, the absolutely hardy kinds that merely require sowing where they are to bloom and subsequently thinning out freely to suitable distances apart, provide us with very large numbers of "unusual" flowers that are full of interest. A striking example of these of extreme brilliance is Venidium calendulaceum. This forms a dwarf spreading plant, half a foot high, with brilliant orange daisy-like flowers which continue to expand all through the summer and autumn. It is simply gorgeous for a band edging. One seldom meets Cerinthe major, a quick grower that soon begins to flower. The foliage is glaucous and the tubular yellow flowers are very attractive to bees. One is sometimes surprised to see a brilliant patch of forget-me-nots in the borders in August, and one wonders how a plant has so strangely missed its flowering season. There is only one species that will do this for us—Myosotis azorica—and the secret is to sow the seed in early spring and see that the little plants do not suffer from lack of water during summer. Flora's Paint Brush is a showy annual that makes no show in the border, although, when cut and placed in a small vase, it strikes one as a very vivid little flower. You will find this under "Cacalia" in the seed lists, and there are two species—

MASSES OF THE PALE BLUE FLOWERS OF SEDUM CŒRULEUM

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one a vivid post-office red, the other orange-yellow. The stems are tall and thin, and each flower is exactly like a paint-brush that has been dipped in brilliant red or orange and held upright in the air.

For naturalising in steps or crevices between paved paths, a charming and unusual little annual is the violet cress, which has probably been kept out of general popularity by its botanical name—Ionopsidium acaule. The botanists persist in inflicting these terrors upon the lay mind, and annuals seem particularly favoured by their attention, as you will discover if you glance through a representative list; but, happily, we are not compelled to use them—or pronounce them. In this case the plant is a particularly charming one, forming dense tufts of foliage literally smothered with wee pale lilac flowers. It does better in damp and partially shaded places, and is apt to die out in paved paths if fully exposed to the sun, but in the angles formed by steps it is splendid. Equally good in similar positions, though capable of bearing more sun, is Leptosiphon hybridus. This does not exceed 3ins. in height, and rather resembles a mossy saxifrage, but with the cushions studded all over with dainty white, rose or yellow flowers. The seeds of this are extremely small, so that it is essential to make the surface soil very fine before you sow.

That old-fashioned favourite of the cottage garden, Impatiens Roylei, well deserves to be better represented in the present-day garden: though it must only be grown where there is plenty of space, for it is a rampant grower. The elegant pyramidal plant is topped by clusters of rosy red flowers at a height of 6ft. Even more effective is the variety White Queen. Nasturtiums with variegated leaves, dwarf and tall, are most striking where grown in poor soil—for this brings out the variegation in a marked manner. A wonderful grass that should certainly be grown is Coix Lachryma, or Job's Tears. The seeds of this are very large and sometimes used as beads. Calvary clover, Medicago Echinus, with its green leaves heavily blotched by a drop of "blood," and the wonderfully spined seed case that, unwrapped, forms a "crown of thorns," is a very hardy and most interesting annual. An annual anchusa is now obtainable, reaches a height of 18ins. and bears a profusion of valuable blue flowers for cutting. Loasa lateritia, though a climber, is dwarf—2½ft.—and bears striking orange flowers. The seeds should not be sown until early May.

For dry soils, Echium creticum may be recommended and will produce racemes of red flowers very freely. Among useful varieties for cutting in late summer is Rudbeckia bicolor superba. This covers itself with deep golden yellow flowers that are made even more striking by a central brown ring and disc.

Finally, do not miss Campanula macrostyla, one of the most "unusual" flowers of the family. This is not difficult to raise from seed, reaches a foot in height and produces cup-like flowers of a lovely lilac purple with darker veins, while, from the centre, a long style—from which the plant gets its name—protrudes in a striking manner.

H. W. CANNING-WRIGHT.

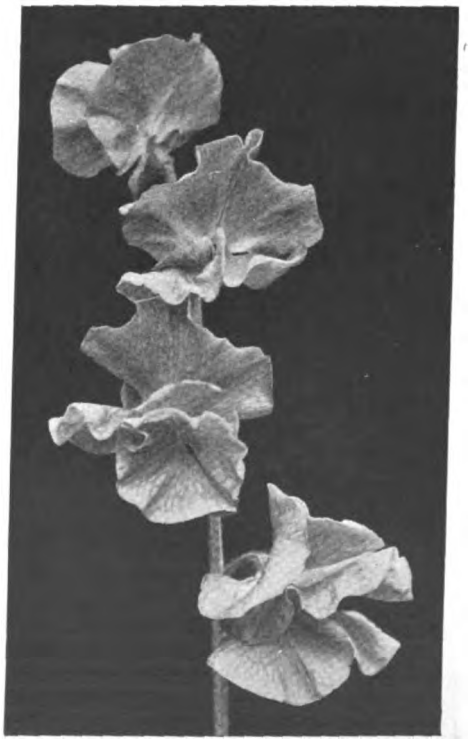
SWEET PEA NOVELTIES FOR 1925

So much has been done to develop the sweet pea that it would seem impossible to improve them further; and yet within the last year some new varieties have been produced which are actually superior to those already in commerce. What is needed more than new varieties is improvement of colour in those varieties which already exist; many suffer considerable damage by rain or sun. The blues turn pinkish mauve in wet weather, and the reds fade in hot sunshine. To the enthusiast new varieties are always acceptable; he hastens to obtain anything in the way of a novelty, especially if it possesses some unique point, such as a variation in colour or form. The exhibitor, too, is ever ready to experiment with new varieties, in order to find out if they produce by intensive cultivation superior coloured and larger flowers borne on longer stems than those which he has been lately growing.

Among the mauves there has been decided room for improvement, and we consider that the new variety, Mauve Beauty, raised by Messrs. W. J. Unwin, has achieved this. When carefully compared with the other mauves it is found to be of a clearer shade, cleaner and more uniform in tone. The mauve is deep and yet not in any way hard. This variety stands the weather well and is a vigorous grower, producing large waved flowers on strong stems. It is particularly acceptable on account of its sweet scent. Messrs. Unwin are sending out another novelty which is most attractive but by some people would be considered too pale in shade, the colour being silvery lavender-blue, which, although light, has a certain brightness owing to its fresh clear tone. This variety, named Blue Butterfly, is particularly useful for decorative purposes. Wembley, a beautiful new variety, soft lavender-blue in colour, was especially noticed at Chelsea Show last year. It is one of the best of Messrs. Bolton's sweet peas, and will probably be more popular than any other similar shade.

The most striking of all the new sweet peas is Pimpernel raised by Messrs. E. W. King and Co., Limited. Although it received an award of merit at the R.H.S. in 1923, it is not yet in general cultivation, as the stock has been limited. The vivid scarlet of Pimpernel is ideal, for even in the hottest sun it retains its brilliancy. This factor greatly adds to the value of the variety, for many of the reds fade in hot sunshine and so lose some of their charm.

The striped and flaked varieties have undergone considerable improvement during the last few years and are now being grown to a much greater extent, and more attention is being paid to the picotee-edged sweet pea. These types are fascinating and very effective for decoration. A good variety has just been introduced by Messrs. Henry Eckford. It is a giant white with a charming picotee edge of a rosy pink. The flowers are large and produced in fours on long, strong stems. This variety, called Betty, is very useful for general purposes, as it is of vigorous growth. A similar dainty variety, called Lady Gay, is being offered by Messrs. Unwin, and in some ways is superior to Betty, the flowers being more distinctive. The bright rose picotee edge is well defined and the wings and back of the standard are flushed and veined in the middle with rose. This variety should convince people who believe that only the self-coloured sweet peas are of real beauty, that there is much to be said in favour of the uncommon striped and flaked ones. Mrs. John Curwen, also raised by the same firm, is another variety which is distinctive in colour and gives a most pleasing effect. The ground of the petals is white and they are heavily flaked and flushed with pink. The large wavy flowers are sometimes produced in sixes and are borne on exceptionally long stems. Mrs. J. Curwen is excellent for exhibition and does not look muddled or poor in colour as do some of the flaked varieties.



ONE OF THE MOST STRIKING SWEET PEA NOVELTIES: PIMPERNEL, VIVID SCARLET.

Remarkable in colour is the novelty Tom Sykes, raised by Messrs. E. W. King and Co. It received the first prize at the N.S.P.S. in 1924. This

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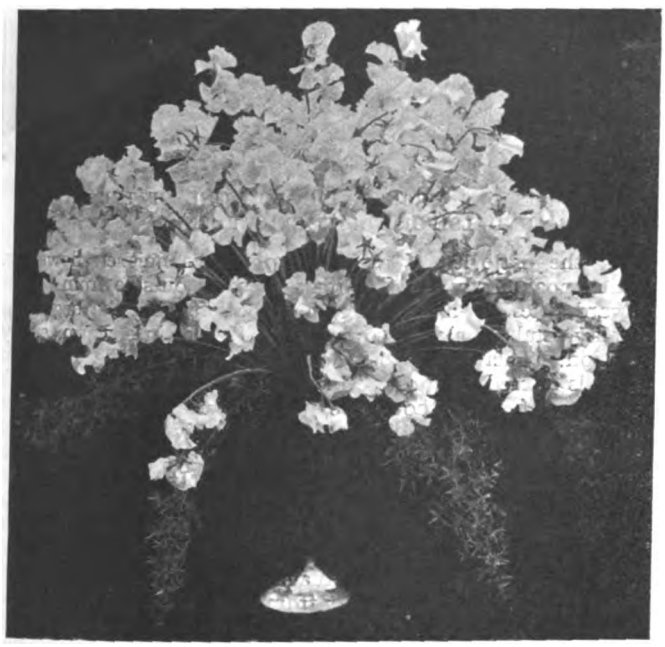
variety should give great delight to the specialist, and is truly called a novelty. The standard is scarlet flushed salmon on a white ground, while the wings are scarlet-pink. The size and quality of the flowers are above the average, and duplex flowers predominate. Two good orange-shaded novelties are Mammoth and Guinea Gold —the former raised by Messrs. Bolton and the latter by Mr. J. Stevenson. Mammoth is a very rich orange verging on scarlet orange, and is very robust in habit. Guinea Gold is a delightful glowing orange which will appeal to many people for decoration. It will stand considerable strength of sun and wind. Both of these were selected varieties at the N.S.P.S. trials last year and received awards of merit. Another sweet pea raised by Mr. J. Stevenson is Coralline, a brilliant orange cerise, somewhat similar to Charming. It is vigorous in growth, large, and possesses a sweet scent.

Grenadier comes as a proof that varieties which were recently considered perfect have now been surpassed by a new introduction. Royal Scot was the best scarlet until Grenadier was put on the market by Messrs. Dobbie and Co., Limited. This new variety is fiery red, large and yet not coarse. The stems are of great length and the flowers freely produced. A good all-round variety also sent out by this firm is a rich ruby red. It is excellent in quality and has been named Ruby. Pamela and Sylvia have delightful combinations of colour and are two novelties raised by Mr. F. C. Woodcock. Pamela is a rich mauve shaded with rose over the standard, while Sylvia is a beautiful blue overlaid with a rose sheen. Both of these are of exhibition quality.

Of the new foreign varieties sent to us recently, Miss California, raised by Messrs. C. W. Morse, the American sweet pea growers, is undoubtedly the best. It received an award of merit at the N.S.P.S. last year and is one of the most charming and distinct of the pinks. It is a salmon shade of pink on a cream ground, the flowers are beautifully waved and borne on long strong stems. This variety is being distributed by the leading sweet pea firms in this country. A good many new varieties have been raised within the last year; some, however, will never stand the test of time, others are mere novelties and will pass out of notice as quickly as they gained favour, while a few promise to retain a position among the selected few.



SWEET PEA WEMBLEY, OF A SOFT PALE LAVENDER SHADE.

INTENSIVE CULTURE OF SWEET PEAS.

TWO GOOD WALL PLANTS

I WAS greatly interested all last summer in two plants growing on the south wall of my house. They are Penstemon isophyllus and the good scarlet form of Phygelius capensis. Both were planted in the summer of 1923 and trained up and tied in to the trellis on the wall. Penstemon isophyllus is not a very widely known species, and like so many of the family it is not always quite reliably hardy on a cold soil and in a cold winter. It is an unusually tall sort, extremely graceful, with long slender tube flowers of a charming soft, clear red which are marked inside with lines of deeper red, and it will go on producing these in loose spikes and with extraordinary freedom from early summer until late autumn. In the open border it will reach a couple of feet or more in height, but trained up my south wall it has more than doubled this. Its main stems have ripened in the wall-reflected warmth and become woody. The only attention it has had has been to cut away the rather bushy growth which developed at the base, so as to encourage top growth, and then as the plant grew I tied the branches in to the trellis.

P. isophyllus as a wall plant was purely an experiment on my part, but it has turned out, so far, a very successful one. What it may do if we have a real winter is another matter, for Stevenage is a cold place. But it will be interesting to see how high the plant may grow next summer, and I can see nothing to stop its reaching 6ft. or 8ft.

Phygelius capensis, surnamed Cape Figwort, is a first cousin of pentstemon, and like Penstemon isophyllus is a good plant all too little known. It is almost invariably grown in the herbaceous border, when it is far better grown up a wall.

As a border plant Phygelius capensis makes a forest of erect, glossy leaved stems about 2ft. high, each of which carries in late summer a whorled spike of orange-scarlet yellow throated blossoms, not unlike those of a pentstemon. Grown in the open border it is purely an herbaceous plant, the stems dying down to the root each winter. Excellent though the plant is in the border, it is infinitely finer when trained up a wall. It then grows much more rapidly. It is best to thin out all but three or four main shoots so as to throw every ounce of vigour into these. In the greater warmth which the wall gives they will ripen and become quite hard and woody, and will not die back as they would in the herbaceous border. My own plant ran up to 4ft. in 1923, and starting in the spring of last year, where it had left off the autumn before, it went on up to 9ft. For three months last summer it was covered with its immense flower spikes and was really a splendid sight.

There are two distinct forms of P. capensis in cultivation. In the commonest and most usually grown variety the flowers are rather a heavy, dull brick red, good, but not nearly so good as the coccinea variety, which is a lively vermilion scarlet.

CLARENCE ELLIOTT.

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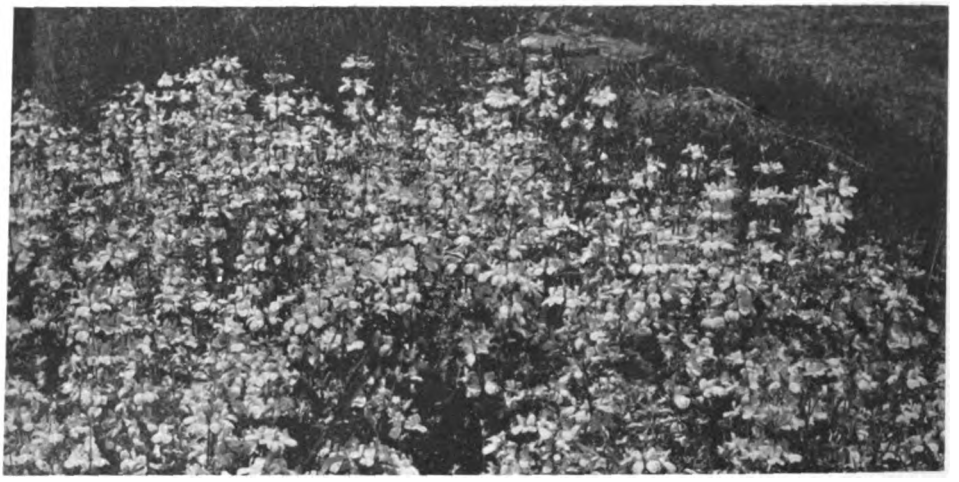
ANNUALS FOR THE ROCK GARDEN

FOR PROVIDING AN ATTRACTIVE DISPLAY IN THE ROCK GARDEN IN THE SUMMER MONTHS, MANY OF THE ANNUALS DESCRIBED IN THE FOLLOWING ARTICLE WILL BE FOUND INDISPENSABLE.

AMONG annual plants which can be grown from seeds each year the great diversity of form and colour is such that they play a most important part in the decoration of the garden, either in the form of masses in the flower border or in the rock garden. Many of them are easily grown and require little attention after the early stages of their existence, and these are among the more showy kinds. The effect produced by a broad stretch of the Caucasian poppy, China aster or eschscholtzia in full flower is a most striking one, but in the rock garden space is limited, so one has to fall back on the smaller and more compact-growing kinds. To produce the best effects many annuals require to be sown in the autumn, when they form small plants before winter, and in the following spring are ready to push forth their flowers directly the weather is favourable. By sowing both in autumn and in the following spring it is possible to have a succession of many of the individual kinds throughout the whole season.



THE GRACEFUL WHITE FLOWERS OF COLLINSIA BICOLOR, ONE OF THE MOST ATTRACTIVE OF ANNUALS FOR THE ROCK GARDEN.

The chief conditions required by annuals include fairly rich, well worked soil, and plenty of room for development. Many annuals are sown far too thickly, and are not thinned out early enough or sufficiently, the result being thin, weedy-looking plants with flowers inferior in size. Thinning should be done thoroughly, and as soon as the seedlings are large enough to handle. Sufficient room should be given to allow for the full development of each one that is left, and good sturdy plants will be formed. After this operation is performed little more attention is required except to keep the ground clear of weeds and watering in dry weather.

In the rock garden annuals may be used as a groundwork for bulbs, and for furnishing the bare spaces after the bulb foliage has died down. There are also many bare patches and corners which may be utilised for growing groups which will provide an attractive colour display during the summer months when the majority of alpine plants have finished flowering. While most hardy annuals may be sown outside from March onward, the half-hardy ones must be left until the beginning of May, and should be sown for preference in a warm, sunny position. There is plenty of choice among the numerous annuals offered by most seedsmen, but for growing in the rock garden preference should be given to the dwarfer and more floriferous kinds, of which a selection is given below.

A well known and charming little plant is Alyssum maritimum, commonly called sweet alyssum. It is only a few inches high, with sweet-scented white flowers in great quantity. A hardy annual, it comes up freely from seed sown in the spring, forming an excellent groundwork for taller plants. Very showy are the pimpernels (Anagallis), A. Monelli having large flowers which vary in colour from orange scarlet to rich blue, as in the case of our native A. arvensis. Although usually a biennial Erinus alpinus will flower the same year from seed sown early in the spring. It is a beautiful little plant for covering old walls and for establishing in the crevices of limestone rocks. The flowers vary from rose to white and are produced freely during the greater part of the season. Most of the eschscholtzias would be found too rampant for our purpose, but there is one species of dwarf tufted habit, E. cæspitosa, a charming little plant with rich yellow flowers. Emilia (Cacalia) flammea, the tassel flower, grows just over a foot high and bears tassels of brilliant orange scarlet flowers during the late summer months.

DIMORPHOTHECA AURANTIACA WITH ITS SOFT ORANGE FLOWERS GIVES FINE EFFECTS WHEN USED IN MASSES.

The campanula family provides two or three pretty hardy annuals: C. attica of very dwarf habit and flowers about half an inch in diameter, varying in colour from a rich bluish purple to white being the smallest. C. Loreyi is a beautiful species growing about a foot high and is for a long period covered in bloom. The flowers vary in colour from mauve-blue to white, and are 1½ins. across. Collinsia bicolor is a graceful annual growing about a foot high with rose purple and white flowers, while var. alba has pure white ones. Seeds sown in autumn produce plants which flower in May, while spring-sown ones flower freely in summer. The best species for sowing in autumn is

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the blue-flowered C. verna. Both these plants come from California. One of the most brilliant annuals is Convolvulus tricolor (C. minor), which forms a spreading tuft about a foot high, covered for a long period with numerous deep blue flowers each having a white centre.

Dimorphotheca aurantiaca, the Namaqualand daisy, is a beautiful annual of bushy habit about 9ins. high. It has large daisy-like flowers of a salmon orange shade, with a black central zone. When the flowers are open in full sun it makes a very attractive group, one of the most brilliant annuals we have. A white-flowered kind is D. pluvialis, the flowers having a golden centre with the underside of the ray florets coloured a rich maroon. The erysimum family contains two good plants in E. Perofskianum (syn. Cheiranthus Allionii), about a foot high with brilliant orange yellow flowers, and E. linifolium (syn. Cheiranthus linifolius) with mauve-coloured fragrant flowers. The latter is really a perennial in suitable positions, but may be treated as an annual, and is very useful for naturalising on old walls. Downingia elegans is a very pretty annual growing to a height of 5ins. with narrow leaves with blue and white flowers not unlike those of a large lobelia. It is a native of California and belongs to the campanula family.

The gilias, also known as leptosiphon, are among the most charming of all annuals. Many of them form dense little bushes covered with numerous bright-coloured flowers. One of the smallest is G. aureus, with bright yellow flowers about half an inch in diameter on plants about 4ins. high. G. androsacea, with rosy lilac flowers, is slightly taller than the last, and of the same tufted habit. Gilia tricolor grows about 9ins. high and bears lavender-coloured flowers shading to white. All these are Californian plants and like a warm, sunny position. The violet cress (Ionopsidium acaule) is a charming little Portuguese annual about 2ins. high, forming dense tufts of violet-coloured flowers in early spring from autumn-sown seeds. Spring-sown seeds come up quickly and soon develop into flowering plants. A choice plant for the rock garden associated with even the choicest of alpine plants, it never becomes aggressive, and is particularly suitable for sowing in the crevices of paved walks or rugged steps. A good bee plant is Limnanthes Douglasii, either for sowing in autumn or spring. It is only half a foot high, with beautiful yellow flowers edged with white, and may be had in flower during the whole season.

Many of the toad flaxes (linaria) will be found useful for this purpose, as the annual kinds are all dwarf in habit and very floriferous. L. maroccana has flowers varying from dark violet to pink, crimson and yellow, all with a blotched lip. A. reticulata is a maroon scarlet with a golden blotch, while A. saxatilis is rich yellow. One of the most brilliantly coloured of all summer annuals is Linum grandiflorum, with glowing crimson flowers on tufted plants about a foot high. It is half-hardy, and should not be sown till April. The Virginian stock (Malcomia maritima), a well known favourite, may be had in various shades of colour, ranging from mauve to crimson and white. Matthiola bicornis, the night-scented stock, should be grown for its delicious perfume, which is specially noticeable after a shower of rain. A brilliant little half-hardy annual is Mesembryanthemum tricolor, with a more or less procumbent habit and ascending branches. The large flowers, 1½ins. in diameter, bright rose at the tips, shading to white in the centre, are produced very freely in a warm, sunny position.

Trailing, spreading annuals are the nemophilas from California, the best of which is N. insignis. Its flowers are over an inch in diameter, bright sky blue with a white centre, while there is also a pure white variety. N. atomaria has white flowers not so large as the above, with small dark spots. N. discoidalis is very distinct, with maroon flowers, the petals of which are edged with white.

Phacelia campanularia is one of the very best blue-flowered annuals, growing to a height of 6ins. or 8ins. and forming little tufts of light green foliage. The flowers are bell-shaped and of the most brilliant gentian blue colour produced in succession over a long period. For producing brilliant patches of colour very few plants equal the sun plant (Portulaca). It is a half-hardy annual, and should be sown towards the end of April in light, dry soil in a sunny situation. Numerous varieties in all colours are offered by seedsmen with both single and double flowers. For naturalising in odd corners in the rock garden Saxifraga Sibthorpii is a bright little plant with its rich yellow flowers, while a charming companion for it is the blue sedum (S. cœruleum). The latter is only half-hardy, of creeping habit, with dainty racemes of delicate lilac flowers during the summer months. Another blue-flowered plant is Veronica glauca, which is best sown in the autumn.

Many other choice annual plants might be mentioned which would be found useful, but from the above one could select sufficient material for use in furnishing all the bare spaces that occur now and then in the rock garden. By judicious arrangement of the plants also, a bright and continuous display of colour can be had in the rock garden over a prolonged period, which adds joy and considerable pleasure both to the raiser and the onlooker.

W. IRVINE.

NEMOPHILA INSIGNIS FROM CALIFORNIA, ONE OF THE MOST BEAUTIFUL OF SPREADING ANNUALS, WITH SKY BLUE FLOWERS.

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GARDEN COLOURS

USEFUL ADVICE REGARDING COLOUR IN THE GARDEN. THE AUTHOR IS BOTH AN ARTIST AND A GARDENER.

IN the noble army of gardeners there are some regiments whose chief interest is in the individual plant; others whose first thought is for the effect of plants together in the garden. Neither regiment has any occasion to throw bricks at the other; but before I begin writing about garden colour I will try to pacify possible brick-throwers by saying that I agree that what little is written about garden colour is in large part tosh. (I except, of course, Miss Jekyll's famous book, and have not yet read Mr. Tinley's.) I agree, too, that the gardener who has no keen love for plants and their individual ways might as well take to house-painting: and I confess that if anyone offers me some marvel of a plant from Kamschatka or Peru I can hardly ever resist accepting it, even though I haven't the foggiest idea what company to put it in.

It is perfectly true, of course, that the Peruvian plant, if it happens to be so accommodating as to grow under the same conditions as the Kamschatkan, will generally look quite bearable beside it: but everyone who is not content with that hazard is to some extent a player of the colour-gardener's game.

The commonest defect in garden planning is certainly lack of simplicity; and this is specially true of the use of colour; and the problem of simplification becomes insuperably difficult if one piece of ground has to hold not only all the plants from Peru to Kamschatka, but also to combine those that flower from January to December.

"A blaze of colour all the year round." That is a common ambition for the whole of a mixed herbaceous border. But I am convinced that the best plan, even in a small garden, is to sort out the plants to some extent, so as not to waste the effect of their association. If you have Lilium croceum, say, growing near Clematis recta, they will make better effect than if they were apart; and if you bring a pure blue delphinium or anchusa into their company, you will find an added quality in each.

DELPHINIUMS IN THEIR MANY SHADES OF BLUE AND PURPLE.

Begin, then, I should say, by sorting out, and then go on to plant enough of one thing—or, at any rate, enough of one colour—to make a clear impression. To plant enough of one plant: that is always the difficult task. And it is remarkable how much of one good plant the eye can stand without finding it monotonous: Erica australis, say, or Rhododendron ciliatum, or Poet's Narcissus, or even aubrietia. One has also to learn what are the colours that really do hang together: for instance, Ceanothus Gloire de Versailles with Aconitum volubile and Clematis Perle d'Azur, or with Echinops humilis: Escallonia langleyensis with red valerian: or, at this moment, Rhododendron mucronulatum, with its gay rose-magenta, repeating the colour of Cyclamen Coum at its feet. Miss Jekyll has written of the effect of snapdragons with valerian of the same colour: the differing textures giving a pleasant effect as cut velvet does; and this is a very simple kind of colour harmony to look out for.

Then come the sequences of the same colour in varying tones. I am sure that is a kind of colour harmony not nearly enough considered. Take a spray of Thalictrum dipterocarpum, say, and put it against the velvety darkness of Clematis Jackmanni superba, or Sparks' Aconite. The depth of violet-purple in the one is beautiful in relation with the paler tone of the other. A great deal can be done in this way to give emphasis to the weaker colours—make them sit up.

With the mixing of different colours the game begins to get more difficult. Try, this spring, when the scillas and chionodoxas are out, picking a scrap of each flower available and sorting them into two or three companies. You will find, I think, that there is a series, culminating in the intense cerulean blue of Scilla sibirica, which does not mix well with the other pinker blues, such as hepatica or Anemone blanda. Keep these blues a little apart if you can; but there are plenty of colours that you can mix with either of them; the common primrose's yellow, for instance. Distinct from these there will be a violet series, including Iris reticulata and Crocus Tomasinianus; and so on.

Well, apply that principle to the summer garden. When the purple-blue Geranium platyphyllum is out, see what belongs to its company; the lupins and pallida irises, and the cool pinks and yellows of that season. And see where Thalictrum purpureum looks best: by itself, perhaps, with Lonicera syringanthus, or with spiræa, in some half-shady place. For there are many violet and purplish flowers that look best in shadow: magenta phloxes, for instance, and the bluer rhododendrons, such as Augustinii and hippophæoides.

When the delphiniums come, try the "matching" game again. (Yes, I know some people may smile if they find you at it, but it is a very good game all the same.) Some people like mixing all the purples and blues together, but, personally, I like to keep the pure blues, light and dark, separate from those touched with pink and purple. The purple delphiniums, such as The Alake, are in one series, and the pure sky blues, such as Blue Bird and Lord Lansdowne, in another: and the latter certainly require contrast, such as the clear yellow of tree lupin or Harkness hybrid mullein, to give them their full colour value. Do not be obsessed by a phrase such as the "blue border."

After the delphiniums come eryngiums, with their lovely equivocal blue: they are invaluable as a foil to the oranges and yellows. Try, for instance, the effect of E. Oliverianum of Alstrœmeria aurantiaca major, or Lilium pseudo-tigrinum, or montbretia, or Potentilla Friedrichseni (a valuable pale yellow shrub for the mixed border).

Then there are the plants that keep company with lavender, such as echinops and pink phlox, and Clematis Jackmanni superba, a plant which deserves a chapter to itself. Thalictrum

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dipterocarpum is another plant to make plans for: and so is Salvia nemorosa, which makes a fine accent of strong colour in the company of silver asters and cool pink lavateras, hollyhocks, anemones and clematis. Buddleia and ceanothus, too, can be made the chieftains of new companies, grey-blue with pink and yellow, or purple and pink and grey.

I have not got to the brightest colours yet, the red-hot pokers and bergamot and pentstemon. But I must stop. One word more. There is a lot more to be done by studying the colours of leaves. Too often, for instance, the colour effect of beautiful grey leaves, such as Rosa rubrifolia, Senecio compacta, Teucrium fruticans or Cotoneaster pannosa, is wasted by being too much divided up.

Design is only one part of gardening: the kind of design I have been speaking of has the merit of helping one to appreciate and profit by the happy accidents. A PAINTER.

CROP ROTATION

BY EDWIN BECKETT.

WHEN one takes the opportunity in what may perhaps be a few idle moments, mentally to survey different aspects of horticulture, it is impossible not to be surprised at how little is really known of this great and important science, so necessary to life. It is forced home on us that the whole matter is practically even now only in its infancy, and that there is an enormous amount of research work due, if the world is to benefit in this matter, as it should. Crop rotation is one of the phases of which we really know but little yet, though no doubt, in generations to come, this will be a very important feature in the industry. It is as well perhaps to emphasise how little we know, as a whole, on these matters. Some time ago, I remember reading of a series of experiments that had been carried out, I believe in America, from an agricultural point of view, in connection with rotation work for cereal crops, and these had occupied not less a period of time than *thirty years*. Consider that period, and then see if anything like this has been done anywhere for horticulture. One of the determinations of this experimenting was to fix the fact that, generally speaking, the interval that should be allowed to elapse before a crop was returned to any particular area, was four seasons, and it was found that a lesser time correspondingly decreased the yield from the area. Now, though we may say that this was for cereals, yet the fact is just as important for vegetable crops, and though it may not be convenient to wait for four years before growing certain vegetables again on the same site, yet the example quoted emphasises the fact that the need does exist for some systematic dealing with vegetables in this way.

Let us for a moment consider the reasons for this changing about. There would appear to be two: the first being that crops will, to a greater or lesser degree impoverish the soil of the food constituents that they require, and for the process of allowing renovation of "Mother Earth" to be accomplished, other crops should occupy the position, such as will find their nutriment in other elements of plant life that is contained in the ground. Second, one must not overlook the fact that there are diseases that affect some plants and do not affect others, and therefore, should one grow crops that will be weakened by the absence of their proper food, they will the more readily fall a prey to their foes of disease, and, of course, this is the more urgent when it is found that a crop is affected by a disease, for it would be little short of madness again to use the same piece of ground where disease is present in active being.

It may be taken as an axiom that practically all vegetables dislike cultivation for two successive seasons on the same site, and I generally advocate that this repetition should be avoided for at least two years, so that two seasons intervene between the time when a plot is first employed for a crop, and the next period of cropping with the same thing, and as this requires a certain amount of plotting and planning to accomplish, it is to be recommended that a careful gardener, who is prepared to take the proper interest in this matter, should prepare a rough plan of his ground, setting out just what kinds he intends should occupy certain spaces over a period of say three or four years. This will avoid the possibility of recropping within too short a time, if the ideas set out are carefully worked to.

In furtherance of this idea, it will be found that certain crops afford a good follow on for earlier ones, on the basis of the suggestion previously set out, that one crop will leave or reject certain food elements, that the following one will utilise to its full advantage. For an example or two, we have stump-rooted carrots as an ideal follow-on after the early potatoes have been lifted, and when the carrots have been cleared after reaching the desired stage of maturity, then cabbage can well occupy the same site. Thereafter, needless to say, do not occupy the area with a further Brassica family member, for this is the same group as the cabbage, and they very strongly resent following one another, and frequently fall victims to "club-root" disease where this is attempted. Onions, however, would form an excellent next crop, and then, for the third season, something quite different, such as a leguminous crop could take possession of the site. Another excellent succession is formed by first planting celery, a crop which so greatly benefits the condition of the soil, and renders it in fine fettle for peas to follow. Then for the change of class again, either leeks or winter greens can occupy the site, such, when cleared being followed by a crop like potatoes. Several useful combinations can, after this manner, be worked out, and the usually harmful practice of succession thus be avoided.

Just a little modification of the idea is now desirable, for it is not an inflexible rule, as there are a number of crops, that even if they are a trifle adversely affected, yet may well be grown on the same site for a number of years, and especially if all due attention is accorded the soil by proper trenching methods, and application of manures and fertilisers. These are leeks, onions, shallots, carrots, horseradish and artichokes, both globe and Jerusalem. Potatoes too can also be grown on the same site in this way, but the attention in the way of trenching and food is even more necessary for these. In this way we have grown potatoes, on what is an ideal site for these, continuously, over a period of forty years, for exhibition work.

Reference has been made once or twice to plant food, and in the foregoing schemes for rotation, as set out, this point must not be overlooked in conjunction with the allied subject of soil movement. The requisite care, in the application of suitable manures, fertilisers, and above all lime, must also be properly considered and dealt with, as well as the working of the ground.

Just a final word in connection with the last remark. Some there may be who will find their piece of vegetable garden perhaps too restricted to give this matter of crop rotation full consideration, and to such folk I would say that, where it is really impracticable, they should resort to real deep trenching, the deeper the better, as a corrective and preventive of the evils referred to, bringing the sub-soil up to the surface; keeping in mind that the plants want proper food, suited to them and that "any old thing" in this way, will not do.

A PRETTY JAPANESE COLUMBINE

WHILE it has not the stature and commanding charms of the tall hybrid columbines so justly held in high admiration, Aquilegia flabellata, a charming Japanese species, has its own attractions and has a special value for those interested in their rock gardens, where the hybrids would be out of place. A. flabellata is a most attractive dwarf plant, which grows about 9ins., or, occasionally, a foot in height. It has pleasing leaves and pretty flowers, which are large for the size of the plant. They look well on the plant and form an attractive feature of the rock garden. Personally, I like to have it as dwarf as possible, and I can secure this by planting it on poor hard soil, with the result that it grows only about 6ins. high. The flowers are of a good blue, but there is a still prettier white variety, A. flabellata alba, which I have found come almost invariably true from seed. The typical blue form can also be raised from seeds, which germinate well if sown in spring, either in the open or under glass. It will thrive either in sun or shade, a good quality which helps greatly to make it more valuable to the many. S. ARNOTT.

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CORRESPONDENCE

DESTRUCTION OF SNAILS AND SLUGS.

SIR,—Mr. F. C. King, on page 65, asks for opinions concerning ducks for ridding gardens of the above named pests. From my experience here, I say that the food of our familiar waterfowl first and foremost is the worm. We are often told to keep ducks to rid us of slugs, but I seriously think that no duck will touch them, if it can possibly find something more agreeable. When my man and I are digging, the ducks are usually there and hardly a single worm escapes. Often a slug is unearthed and thrown to my three or four ducks, but I have never seen one touched. Reluctantly, therefore, I hardly believe in the efficacy of ducks concerning snails and slugs. May I say they are fonder of a half-grown frog if it comes near enough.

As regard Mr. A. D. Richardson's powdered alum cure, like Mr. King I am sceptical. I strongly advise Mr. King, therefore, to cling to his practical means and not bother much over the more or less scientific ones. I do not say for certain that the duck when nosing about under leaves, weeds, etc., does not take an occasional slug, but I am convinced it prefers other delicacies.—R. MORTON.

SIR,—In your issue of January 31st Mr. F. C. King asks about ducks as slug-killers in a garden. I have had a pair of wild duck in mine for many years. I should be very sorry to part with them. They are quite the best "remedy" I know for slugs. The damage they do is very slight, and they practically rid the garden of slugs. They are very tame and ornamental. I think the ducks should be wild duck, or a similar size; the large, heavy duck might paddle the soil a good deal.—BASIL SPRAGGE, *Lockerbie, N.B.*

SIR,—My experience with these pests may be of interest to your readers. Living in Cornwall with a garden surrounded with loose walls and hedges, there are plenty of slugs to be caught. About six o'clock all last summer I placed small heaps of bran around the garden in those places where I had noticed the slugs were most troublesome. After dark I went out armed with a lantern, an old saucepan half full of ordinary salt dissolved in water and a pair of forceps. All I had to do was to visit the heaps where the slugs had forgathered to feed, pick them and pop them in the salt with the satisfaction of knowing that each one caught was really out of the garden for good. At this time of year I place the bran under a slate or a piece of board and collect up the harvest of slugs in the morning, this being less unpleasant than turning out of a night. As to the question of powdered alum, speaking as a chemist I see no reason why this should act in any way different from common salt, and most certainly would require renewing after rain.—EDWARD CAHEN.

SIR,—The encounters of your various readers with slugs are read by me with so much sympathy, and I hope my own experiences may be a help. When we made this garden some years ago it was overrun with slugs. We are on the very edge of Dartmoor, and they descended on us in thousands of every size and complexion and all equally ferocious. No snails, luckily. We had almost given up hope of delphiniums and other rather favourite plants, as the slugs sat by and ate shoots as they appeared, if not earlier. But one spring, just by chance, my husband turned about a hundred baby chicks two or three days old into our kitchen garden, where my flower borders mostly are, with a brooder for shelter. They set to work and cleared the whole garden in no time, and grew and flourished in consequence of so much food. Now we always put the first brood or two there. They do no harm, and it is delightful to see them turning up every leaf and hunting up all the insects. Nowadays there are no slugs at all of any kind, and very few woodlice or earwigs or any insects. Directly the chicks begin to scratch the soil about we move them out into runs and put in another lot. Incidentally, they cleared the garden of white stone crop which at one time threatened to smother everything. Many people hatch out a few chickens each spring and could do as we did. We tried ducks, but they did far more harm than good, but the tiny chicks hurt nothing.—NORA GILOART, *Devon.*

SIR,—A method of dealing with the above pests which I have found of service in reducing their numbers is, when pulling up the various members of the Brassica family when their season of usefulness has come to an end, to place the greenstuff in heaps on the ground on which they have been growing and also on other parts where it may seem desirable, chopping up such things as Brussels sprouts to make them lie closer together. These heaps, if left for several days, will attract numbers of slugs, which can be readily exposed by turning the vegetable matter over, when a thick coating of soot can be applied, which destroys them. It is well to use the soot very freely, as the slugs have much less chance of escaping than when a mere dusting is applied, and the soot can be spread about after it has accomplished its purpose in killing vermin, as it forms an excellent fertiliser for the soil. Kainit, or other potash salts or common salt, might be used in place of soot with good effect. Professor Cousins, in his most useful little book "The Chemistry of the Garden," says: "Soot, when fresh, is a useful garden remedy for slugs, and being a general fertiliser, is often of valuable assistance to the gardener. Dust the soil with soot until it is quite black." A good way is to apply the materials direct on the slugs when they are feeding either in the early morning or late evening.—R. W. DEAN, *Basingstoke.*

[A correspondent has sent us a copy of the *Gardening Bulletin* which gives a method of destroying slugs and snails. This is the method: "Take a half-gallon dipper. Fill it with bran. Pour the bran into a large bowl or tin. Add to the bran one teaspoonful of Paris green obtained from your seedsman. Do not use more than a teaspoonful. Ordinary painters' Paris green is useless. With a large iron spoon or other similar article carefully and thoroughly mix the bran and Paris green. Take plenty of time over this operation. Thorough mixing is essential. It will require a quarter of an hour to make the mixture thorough. Every small particle of bran will (if by thorough mixing it be given the opportunity) absorb a minute quantity of the Paris green. Choose a dry night for spreading the mixture, and spread it very thinly. Allow it to dribble thinly through your nearly closed fingers. One dipperful of bran should be sufficient for a quarter of an acre of ground. A little thought will enable one to see the reason why a thin scattering only is necessary. If thoroughly mixed, each tiny flake will, when eaten by a slug, destroy the eater. Slugs and snails are extremely fond of bran. If one could arrange for flakes of poisoned bran to lie on the ground at intervals a foot apart, it would be sufficient for our purpose."

A similar method has been sent in by "Nil Desperandum."—ED.]

BEDS OF ST. BRIGID ANEMONES.

ST. BRIGID ANEMONES.

SIR,—I enclose a snapshot taken in my garden last spring of St. Brigid anemones grown from our own seed. They are the most glorious colour and size I have ever seen. It would be interesting to find out whether any other readers of THE GARDEN have had such fine results.—D. BUCKNALL, *Co. Cork.*

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NOTES FROM CONTRIBUTORS

PODDED PEAS IN POTS.

THERE is no doubt the growing of certain vegetable crops under glass is educative and interesting work, and in these days many people might make more use of empty glass structures by growing culinary peas. The variety Sutton's Little Marvel may not be the best for indoor culture, but certainly this kind is most suitable for pot work, and especially for those having little spare room under glass but who nevertheless wish to have pea pods for picking in April and May.

Some time in the first or second week of November is a good time to have the peas sown. Our practice is to crock a number of clean 4in. pots and to fill these to about 1in. from the rim with a medium fine soil consisting of fresh loam with which has been incorporated a little sand and old lime. Seven or eight peas are set in each pot and covered with ½in. of soil. This may seem a large number of seeds for a 4in. pot, but we have got to allow for a few plants in the batch damping off or getting damaged; then an 8in. or 9in. pot is not really well furnished with fewer than six or seven plants.

After germination and when the young plants are about 1in. high, place the pots on a shelf near the roof glass in an airy structure, but where safety from frost is assured. Careful watering throughout the dark days of winter should be made a rule; indeed, the watering of peas at all times should be most carefully done. About the middle of January preparations should be made to have the plants accommodated into 8in. and 9in. pots. The 4in. pots, although containing six, seven or eight plants each, should be repotted as one plant. A soil mixture of equal parts fresh loam and leaf-mould, with a little sand, old lime and wood ashes, should be used. The soil should be only moderately firmed in the pots; but one special point to bear in mind while the work of repotting is going on is to keep the old ball, *e.g.*, the mass of earth and roots taken out of each 4in. pot, slightly raised above the level of the fresh potting material surrounding it in the larger pot.

The staking of the plants should be done as soon as the stems have made sufficient growth, but certainly before they get bent over. By the middle of March the plants should have grown 12ins. high and be in flower; in fact, some may be more forward than others and even have tender pods 1in. long. If one looks carefully at these pods the small embryo peas—up to six in number—can be seen through the tender skin of the tiny pod.

Each individual plant will bear several flowers, but Little Marvel does not seem to produce more than one bloom per pedicel. The plants after being repotted were set on a strong shelf in the late peach house. Here good light and plenty of air were afforded, and here the plants produced their podded crop.—DAVID ARMSTRONG, *Midlothian.*

NANDINA DOMESTICA.

THERE seems to be a ready sale at Covent Garden market for sprays of this evergreen and at the beginning of the year the consignments from the South of France included a goodly proportion of berried branches which were eagerly snapped up by the West End florists. The erect racemes of bright red berries, which are a trifle smaller than those of the Fire Thorn, add materially to the decorative value of the shrub. Although it flowers freely in the warmer parts of the country I do not remember having seen any fruits on home-grown plants, though probably they have been produced occasionally during favourable seasons. Nandina domestica is an evergreen shrub for the more favoured parts than for general planting, though it would thrive as a wall shrub in many districts. The best and most vigorous plants are obtained from seed, but germination is not usually good in this country, so most of the stocks are raised in Japan and imported. Cuttings placed in a mild heat will root, but it is usually a slow process.—A. C. B.

THE MIMULUS AS A BORDER FLOWER.

AMONG the bright garden plants which are much too seldom grown are the many fine varieties of the mimulus or monkey flower. They are, perhaps, not of highest value for cut blossom, but in the border they certainly make a handsome show. Nothing particular need be said about their culture; sown in heat, transplanted when small and finally hardened off in the frame, they are ready for bedding in May. They flower almost as soon as they are put out and continue to increase and flower till frost stops them. I would point out that the mimulus revels in a damp soil and seldom does well in a sunny dry site. We have had them particularly fine these last two wet summers. The Rosy Morn varieties are easily best; they grow compactly and have beautiful salmon-rose flowers of large size. The Tiger varieties are blotched in a peculiar but pleasing and striking fashion. Then, of course, there are others to meet all tastes as regards colour.

Musk belongs to this genus; we grow it as an annual and as a perennial, but we would be grateful to any reader who could tell us where to get seed of the old sweet-scented perennial which we lost during the war.—LANARKSHIRE.

SCHIZOSTYLIS COCCINEA.

DURING the month of October, this plant made a fine splash of colour in the flower garden, producing a wealth of its spikes of crimson-scarlet blooms. It is a plant worth growing in quantity for cutting purposes, while it is also well adapted for pot culture, the flowers being protected from bad weather in a cool greenhouse come to full perfection. Known as the Crimson Flag and Kaffir Lily, it hails from South Africa, and is a bulbous plant of merit. It will succeed in any average garden soil, preferably a sandy loam, so heavy soils could be made suitable by the addition of leaf-mould and sand. In the front of a shrubbery border, a warm, sunny spot on the rock garden, and in cold districts at the base of a wall facing south, are ideal places for this delightful plant. In a few years the roots will become crowded, and then it will be necessary to lift and divide them. Such work is best carried out in the spring, and when dividing each piece should consist of five or six shoots. Replace 9ins. apart, and if placed in the same spot, enrich the soil with a dressing of partly decayed manure. A variety named Mrs. Hegarty has rose pink flowers.—T. W. B.

CROCUS SIEBERII.

SOON after the New Year has begun, in a mild winter with some sunshine, which we do not have too frequently, we eagerly look for the appearance of the dainty little Crocus Sieberii, which has been characterised as "a hardy mountaineer, anticipating all others." It is not really so precocious, but it is one of the best of the very early crocuses, standing rough weather better than some by reason of its greater substance and moderate size. Were it as large as the modern Dutch crocuses it would have a poor chance of surviving the trials of January and February. As it is, it is all the better for a sheet of glass above it to throw off snow, sleet and heavy rain, but it does not require this if we are disposed to run the risk of its beauty being prematurely destroyed by an unusual trial of endurance. It is very charming to see a clump or mass in a sunny border, on rockwork, or in grass, opening to the scant sun of January or February. Its beauty is great indeed, though of comparatively miniature type. The flowers are a bright lilac with a yellow base and an orange yellow throat and are remarkably pretty, either closed or open. There is a very rare and expensive variety, almost unprocurable, called versicolor, of varying colouring but delightful in every way. C. Sieberii itself is not expensive and may be procured in early autumn and planted about 2ins. deep in light soil in a sunny position. The planting should be done as early in autumn as possible.—S. A.

ANEMONE PALMATA.

ONE is accustomed to the most surprising variation in the anemone family as different species come to be known, but those who have not met this—which is sometimes called the cyclamen-leaved anemone—should be prepared for a very remarkable and most showy plant. It does not flower until early summer, but is then a gorgeous picture indeed with its masses of golden yellow glossy blossoms. These only open in full sunshine, a hint that should be taken when planting to give it a very sunny position. This is still more important in view of the native countries from which this plant originally came to us—Spain, North Africa, etc.

The leaves are heart-shaped, somewhat hairy and slightly toothed on the margin. The roots are tuberous and may be planted at any time during the dormant season, a specially successfully spot being in the rock garden, where a pocket can be filled with a mixture of peat and turfy loam to which some leaf mould has been added. Do not omit the peat or leaf-mould, for these are invaluable aids in retaining moisture which is one of the chief demands that the plant will make during summer. Further plants may be obtained by the alternative methods of division or raising from seeds.—SANDSTONE.

SEED SOWING IN THE ROCK GARDEN.

NOT infrequently in the construction of a rock garden, the furnishing is proceeded with almost immediately by procuring the necessary plants. It is looked upon as quite incomplete unless the niches and spaces are covered. The question of cost however, sometimes precludes the whole of the space being utilised and, as spring approaches, the question arises as to what is best to be done. Strange as it may seem, I have met friends who, while raising annuals and perennials from seed in a general way, cherish the idea that so far as the furnishing of a rock garden is concerned, raising plants from seed therein is a long and often drawn-out process. It is only part of the truth, as there are many things which emblazon our rock gardens in spring that may be sown in a cold frame in April, pricked out and planted when the time arrives, becoming large enough to occupy their places among the stones and rock the following spring. Such are some of the campanulas, aubrietias, dianthuses and saponarias. In too many instances it is an eagerness to have a fully furnished rock garden filled with flowering plants at the earliest possible date that accounts for the comparative few who raise plants from seed.—CLAREMONT.

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OBITUARY

MR. WILLIAM WATSON,

A.L.S., V.M.H.

IT is with sincere regret and a sense of a deep loss to horticulture, that we record the death of Mr. William Watson in his sixty-seventh year. The Curators of Kew have rarely lived long to enjoy what should be a well earned rest on their retirement and Mr. Watson has had a more brief period than his predecessors, for it seems but yesterday that he retired from the Curatorship. For some months past he had suffered from heart trouble and lately entered a nursing home at St. Albans in the hope of renewed health, but died on January 30th and was buried in that old city on February 2nd.

Mr. Watson was in the Royal Botanic Gardens, Kew, for nearly forty-five years, and during the greater part of that time "Watson of Kew" was known wherever plants are cultivated and, beyond, even in the wilds of the tropics. He came to Kew in July, 1879, as a cultivator—to be exact as an expert propagator—and throughout his career was a cultivator first and foremost. He possessed an exceedingly wide knowledge of plants of many kinds and their cultural needs, and, added to this, had a most enviable gift of writing about them in such a manner that, to the plant lover, the plants of which he was writing lived in his written descriptions.

It is always the busy man who finds time to do things, and besides his official duties during his long period as Assistant Curator to the late Mr. George Nicholson and later Curator in succession to him, Mr. Watson found time, or rather made time by burning liberal quantities of the midnight oil, for writings. He contributed generously to the pages of THE GARDEN and other important horticultural journals; for a considerable time he was Garden Editor of *The Field*, and the literature of horticulture is enriched by a number of books from his facile pen. His most important works are the Editorship of "Thompson's Gardeners' Assistant," which from a single volume he made into an extensive and authoritative work. He wrote the volumes on rhododendrons and azaleas and on climbing plants in the Present Day Gardening Series, while his books on orchids and cacti are still unequalled.

As we have said, Mr. Watson was at heart a cultivator beyond all his accomplishments, and the families of plants he made particularly his own were orchids, cacti and rhododendrons. Of these he possessed an amazing knowledge, although it was difficult to mention a cultivated stove or greenhouse plant which he did not know.

But great as was Mr. Watson's skill and learning he was essentially a "human man" and made many friends, whether they were met in his official capacity, on his visits to famous gardens, at the great Ghent and other Continental shows or during his long-ago voyage to South Africa. He had the welfare of his fellow men at heart and this compelled him to take a leading part in the formation of the Kew Guild and the British Gardeners' Association. For many years, more particularly while he was Assistant Curator, he was chairman of the Mutual Improvement Association of the Royal Gardens, when he would draw, often with kindly humour, from his great fund of knowledge to the immense benefit of the students, and, during his younger days, he took an active part in the sports clubs connected with the Gardens.

In 1916 Mr. Watson was awarded the Victoria Medal of Honour, but he valued most the degree of Associate of the Linnean Society which was conferred on him earlier in appreciation of his long services to the world's horticulture.

He was twice married and leaves a widow and large families. His eldest son, Mr. J. G. Watson, who was trained at Kew, is Conservator of Forests at Jahore, Federated Malay States. To his widow and families we tender our deep sympathy in their loss. A. C. B.

CATALOGUES RECEIVED.

Messrs. James and George H. Matthews, Catalogue of Garden Seeds for 1925. One or two features of interest are the lists of Scotch seed potatoes and their high grade horticultural fertiliser. We would also draw attention to the special mixture of lawn grass seeds, which will provide a really first-class lawn on any ordinary soil. It may be mentioned that this firm has a licensed seed testing station and that consequently their seeds are of a high standard over and above that required by the government.

All potato growers realise how necessary it is to obtain the best of seed so as to ensure a good crop, and of late years, with this end in view, Scotch seed potatoes have come to the very forefront. Our readers perhaps know that certain districts and areas in Scotland produce exceedingly fine seed potatoes. The district around Dunbar is one of those. This season has been a difficult and trying one for all growers, especially of potatoes, and it is predicted that there will be a considerable shortage of seed, and so we advise our readers to order early. We have great pleasure in bringing before all potato growers the name of Mr. Charles J. Spence, Potato Grower, Dunbar, whose catalogue we have before us. It deals solely with potatoes, as Mr. Spence's attention is concentrated on this particular line, so that the important questions of selecting and grading receive great care. Useful hints on the general cultivation of potatoes are given in the catalogue, which will be of great service to all raisers of this valuable and economic crop.

We are pleased to bring to the notice of our readers the excellent catalogue of garden seeds for 1925 presented by Messrs. Toogood and Sons, Limited, Southampton. It is a fairly copious manual, running to 160 pages and profusely illustrated. The space is divided almost equally between vegetable and flower seeds, with a small section on garden requisites which is most complete. The intending buyer is confronted with a wide variety from which to make his selection, and although the quantity appears extensive, the quality will not in any way have been interfered with. In fact, it may be safely said that Messrs. Toogood have done much to improve the quality of all their strains during the last year, while at the same time maintaining a high cropping capacity. All seeds are guaranteed, and we feel certain that satisfaction will result from a perusal of this catalogue on the offchance that something may appeal to the reader's fancy which might at some future date adorn his garden.

In the West Coast of Scotland there is one firm with a widely known reputation among the gardening public, and that is Messrs. Austin and McAslan of Glasgow, whose 1925 Catalogue of Vegetable and Flower Seeds has just come to hand. For more than 200 years Messrs. Austin and McAslan have served the horticultural public, and their success is in no small way due to the high standard of excellence which they have maintained through all these years in all branches of their business. In the world of vegetables they have made a name, especially with potatoes, great care having been paid to selection of good seed, and we feel sure that seed despatched will give first-rate crops. Many pages are devoted to flower seeds, while a section deals with implements and garden requisites. It is a comprehensive guide for 1925, running to seventy pages and contains numerous illustrations. We have pleasure in bringing it to the notice of all readers in Scotland.

Messrs. Richard Melhuish, Limited, Hardware Merchants, 50–57, Fetter Lane, E.C.4.: Gardening Tools and Sundries, with numerous line illustrations. This catalogue will be sent post free on application to any of our readers who apply to the above firm.

D. G. Purdie, 6, Waterloo Street, Glasgow. Vegetable and flower seeds are chiefly dealt with, in addition to a section on sundries. A few half-tone reproductions occur throughout the pages, while brief cultural hints are given which should be useful to amateurs. The catalogue will be sent free on application.

Messrs. Kay and Co., Goodmayes, Essex. A useful flower seed catalogue with a small supplement dealing with vegetable seeds. Profusely illustrated by means of half-tone reproductions.

One of the names generally associated with shrubs is that of Messrs. Robert Veitch and Son, Exeter, but their reputation as seed merchants is also of high standard and their list of seeds for 1925 is well worth perusal. It is a comprehensive guide of vegetable and flower seeds, with a section devoted to tools, manures and insecticides and general sundries.

Other seed catalogues which have been received are those of Messrs. Harrison and Sons, Leicester, and Messrs. Dixon, Hull. The catalogue of the Gateshead seed establishment will be found useful for reference purposes. It is well printed and the half-tone illustrations are excellent. Much interesting matter will be found in its pages.

Another Scottish catalogue for 1925 which we take the liberty of bringing before our readers is that of Messrs. Laing and Mather, The Royal Seed Establishment, Kelso. Messrs. Laing and Mather devote the whole of their time and attention to seed, and they fulfil the old adage about "doing one thing and doing it well." A new departure is to be seen in their catalogue—short cultural notes written by prominent head-gardeners in Scotland on the different vegetables being given. These notes and useful hints should prove both popular and instructive to all amateurs. The greater part of the catalogue is devoted to flower and vegetable seeds, while a few pages deal with garden sundries and requisites. We offer our congratulations to Messrs. Laing and Mather on this season's publication. It is well worthy of the attention of all amateurs and professionals.

The majority of amateur and professional gardeners clearly recognise the value of all garden sundries. It is astonishing how all these little things find a daily use and prove of real service to the gardener in the carrying out of his duties. In this connection we are pleased to bring to the notice of our readers the catalogue of Messrs. Joseph Bentley, Limited, Hull. The gardener will find this an extremely handy reference guide, containing as it does, numerous illustrations and copious notes on all specialities and sundries which go to make work in the garden a pleasure instead of a task. It is one of the most comprehensive guides on garden sundries we have seen, and we can recommend it to our readers.

Messrs. J. R. Pearson and Sons, Limited, Lowdham, Notts, are probably known more in connection with bulbs than any other branch of gardening, but we are reminded that they deal in the general routine work also by their Vegetable and Flower Seed Catalogue for 1925, which has come to hand. The catalogue is of a handy size, well printed and contains numerous illustrations.

Messrs. Godfrey and Son, Exmouth, Devon.—A Concise List of Chrysanthemums; Novelties for 1925.

Messrs. Barr and Sons, 11, King Street, Covent Garden, W.C. Catalogue of Bulbs and Tubers, containing a representative

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FERTILISERS

IN this issue begins a short series of articles on manures. These explain various kinds and how each enriches the soil in some specific manner. Manures from an æsthetic point of view are considered unclean: the word brings to mind a mental picture of a cow-byre or a pig-sty and their contents; in fact, it is a misnomer and should be banished from the vocabulary. This, however, is easier said than done, as its long usage has established its position in this connection. Fertiliser is a much pleasanter word and does not carry with it the suggestion of a dank rotting smell.

And yet how important is this enrichment of the soil. It is a new science which is only slowly within the last few years becoming understood. It is the foundation of all good agriculture and horticulture. When one reads these articles one gets some slight idea of what voracious appetites plants have and what a curious bill of fare suits their tastes. Rotten fish, farmyard manure, bones, ashes, by-products of gasworks, potash, dead leaves and garden rakings, wood ashes, basic slag, phosphates, and hundreds of others all have their uses.

The point of these articles is to show the uses of the various groups of fertilisers and how different soils and plants require different treatment. Not so many years ago farm manure and refuse from town dustcarts alone were used for feeding the soil. Now the old order has changed and scientists are showing us how to enrich our land both scientifically and economically.

A POINT IN NOMENCLATURE

A trade correspondent has written to us regarding the suffix i or ii in the termination of names of plants. He says that he has personally asked many nurserymen, but that they have always avoided the subject. He gives several examples, *i.e.*, Newmanni, Lowii, Veitchii, Henryi, Ingrami. Before answering I have taken the precaution of asking the advice of several classical scholars. They all say that there is no rule about the use of i or ii, and that it is merely a question of euphony. It is impossible to explain why Lowii sounds better than Lowi, but it does, and in the same way Ingramii is horrible compared with Ingrami. One of my informants tells me that even Henryi is untenable, for Latin never used y except in words borrowed from the Greek to represent the Greek u. He says: "If Henryi is for Henry, surely they might use Henricus, and in genetive Henrici." This, of course, opens out the field into a far larger sphere, namely, the correct change of modern names into a classical tongue for the purpose of plant nomenclature. There is little doubt that this is often done, sometimes carelessly, by people with little classical education. I remember Reginald Farrer complaining bitterly about the use of a Latin specific name tacked on to a Greek generic name or *vice versa*, *i.e.*, Rhododendron glabriflorum or Primula euosma.

THE SAME OLD QUESTION

In our issue of February 7th there was an article by Mr. Harley on meconopsis, which has obviously caused a great deal of interest among our readers. The number of letters received has been extraordinary. In almost all of them the writers have asked where seeds could be obtained. I have had to reply that with possibly one exception they are unobtainable commercially.

Now here is an occasion where I can justifiably complain that that portion of the trade who specialise in alpines have been short sighted and negligent. This is not a case of new importations, for M. Wallichii and M. simplicifolia have been known since before 1850; M. integrifolia and M. quintuplinervia before 1885; M. grandis and M. paniculata before 1900. They have for long been grown by enthusiasts throughout the country, not only in one garden; I personally know of at least a dozen where meconopsis of one kind or another have been grown for a number of years. With the exception of M. grandis they are all free seeders. They are easy to germinate and also easy to cultivate once the trick has been learned. And yet with all these advantages the trade who specialise in rock plants have made no effort to stock or push these fascinating plants. The public is also to blame, for they have had opportunities for seeing them, not only in private gardens, but also at Kew, and particularly at the Edinburgh and Glasnevin Botanic Gardens. When their attention is drawn to them in print they become enthusiastic, but not until then. Still, better late than never, and it is to be hoped that the sudden demand for meconopsis will create a supply.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

THE GARDENS AT RIDEAU HALL, OTTAWA, by George Simpson.

THE CONSTRUCTION OF A LAWN TENNIS COURT, by Reginald Beale.

GARDEN PEAS, by Edwin Beckett.

BOTANICAL BOOKS.

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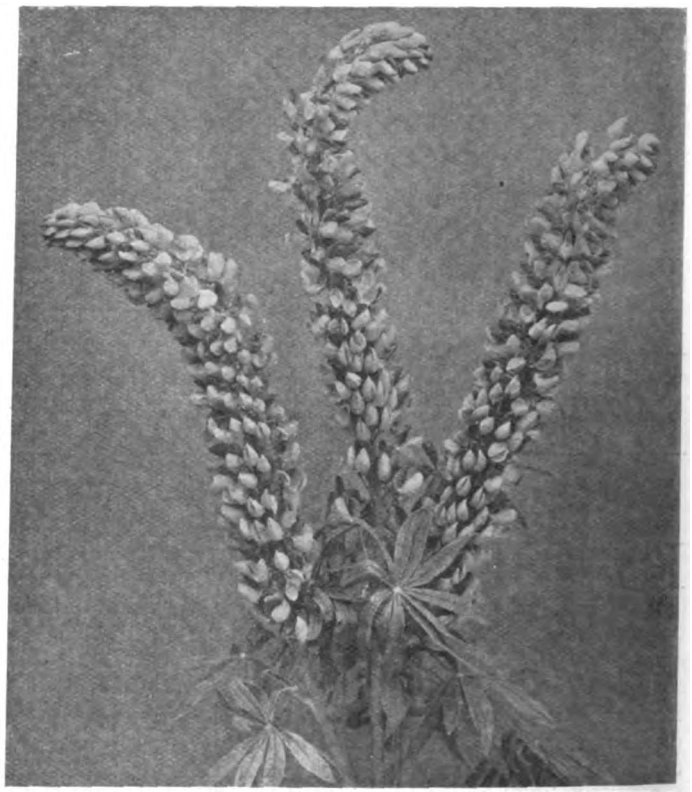
MODERN LUPINS

LUPINS, FOR LONG THE CINDERELLA OF OUR GARDENS, HAVE MADE A GREAT BID FOR OUR APPRECIATION WITHIN THE PAST FEW YEARS

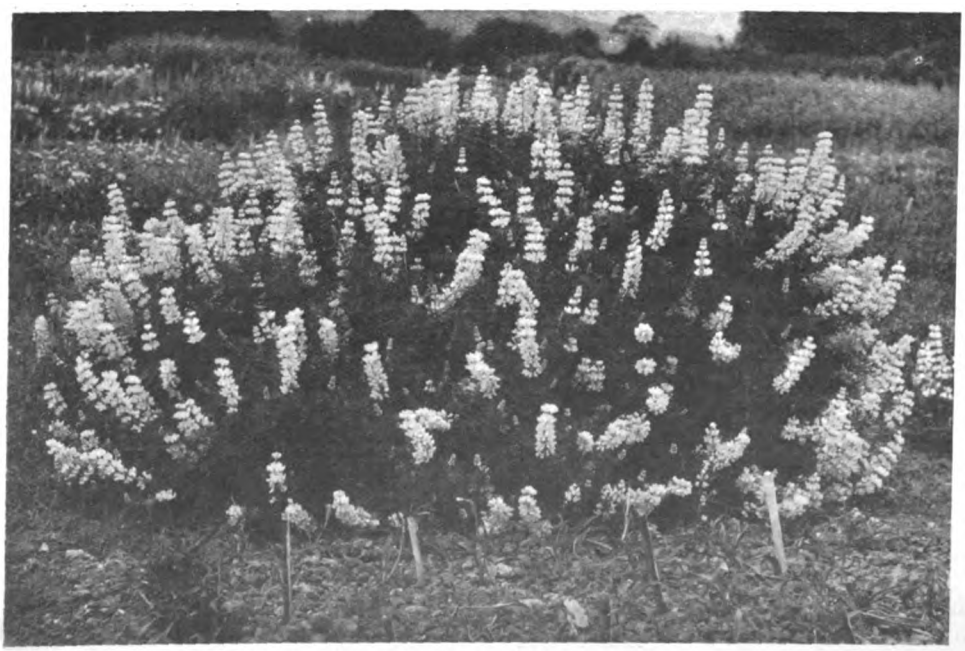
GRATIFYING indeed has been the wonderful advancement of Lupinus polyphyllus, a plant which, having grown for a century or two among the commonest of garden flowers with apparently no particular ambitions or great aspirations to popularity, has of recent years been so wondrously transformed that it serenely takes its place among leading families of hardy perennials and carries a list of named varieties comparable in length with phlox, pyrethrum, and pentstemon, and almost with the kingly delphinium. There is a certain element of mystery in this rapid evolution, and a good deal of hazarding guesswork as to whence has come the kaleidoscopic range of entrancing and indescribable shades and combinations of colour. Time was when one might sow a thousand seeds of Lupinus polyphyllus, knowing that, apart from the inevitable few albinos, by no means remarkably pure in their whiteness, the bulk would fluctuate but slightly between lighter and darker shades of blue. To-day there is apparently scarcely a limit to the variation of tints procurable from a batch of seedlings of one of the best strains, and the lupin has all but proved to be the notable exception to the rule that all the primary colours cannot be maintained in a single floral subject. That hybridisation has had a hand in the process of evolution may be considered beyond dispute, and that some, at any rate, have been the outcome of amalgamation between L. polyphyllus and L. arboreus (the tree lupin) is not difficult to prove. It is a moot point whether that union was not somewhat of an indiscretion; at any rate, some producers are particularly careful to impress upon the world that their strains are not contaminated with arboreus blood. The important point is that L. polyphyllus is a true herbaceous plant, the stems soft and hollow, dying right back to the root stock, next season's growth proceeding from a number of fleshy buds close-set upon the crown of the roots. L. arboreus, on the other hand, is woody, branching, and solid or pithy in stem, new growth issuing from stem joints at the axils of the previous season's foliage. The hybrids not only produced shorter spikes of bloom than the true polyphyllus, but adopted something of the pithy stem and branching habit at the expense of the crown-eyes, and being softer than the wood of L. arboreus these branches frequently succumb to winter's frosts.

That the coveted yellow colour has been produced by arboreus crossings is readily admitted; but when, as has sometimes been asserted, the theory is put forward that L. arboreus is necessarily a parent of all yellow lupins, one is disposed to query its accuracy. It must not be overlooked that there are other herbaceous species of lupin besides L. polyphyllus, and two have some yellow in their colour scheme, albeit in a subordinate degree. Subordinate characters sometimes become predominant in hybrids, and instead of hastily concluding that L. arboreus influence must be accepted and tolerated in the highly desirable yellow hybrids, let the comforting thought be pondered that we may have L. Cruickshankii and L. nootkatensis to thank to some extent. There are, as a plain matter of fact, quite a number of distinct strains of lupins in cultivation, and for my part I should not only hesitate to assert that this particular strain or that excels all others, but would not readily bow to such opinion even though expressed by great authorities. I prefer the theory that the various strains are the outcome of work on distinctly different lines, and that while one strain is strikingly superior in certain features, another is also to be prized because of its excellence in quite other directions.

The "Regal" strain, I will readily admit, strongly appeals to me because it embraces wonderful suffusions of apricot, orange, buff, amber and terra cotta—colours I am fond of in any flower, and raise my hat to in lupins because they mark such a triumph in a family that erstwhile knew nothing approaching such tints. At the same time, an impartial judge will probably proclaim Downer's Delight to be the finest individual break in all the lupins. It is a very remarkable flower, and in its really true form touches a colour that renders criticism unjustifiable.



ONE OF THE FINEST OF ALL LUPINS, DOWNER'S DELIGHT.



THE TREE LUPIN, LUPINUS ARBOREUS WITH ITS CHARACTERISTIC BRANCHING HABIT.

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I say "in its really true form" because one occasionally drops across seedlings which, although quite good and worthy of use for ordinary garden adornment, are not equal to close comparison with propagated plants of the true stock.

Lupins, being leguminous, are capable of fairly reliable self-fertilisation, and seedlings from an isolated batch come wonderfully near the true thing. Thus, for the herbaceous border, seedlings in selected colours are highly to be commended, and like most plants, those raised by Nature's method of increase are frequently stronger and more vigorous than those from successive generations of cutting-struck plants. Nevertheless, when plants are ordered to name for the purpose of growing for show, it is very important that the real thing shall be secured.

One is safe with Harkness for Joy, a wonderful apricot-pink with yellow wings. It is dwarf as lupins go, but a very free and fascinating flower. Gold Crest is in two shades of sharply defined markings of fiery crimson. In this strain there seems to run a decided family likeness which carries conviction that Lupinus nootkatensis is a parent.

Newcomers deserve a note of commendation and encouragement, and Mr. H. Marcham, Borough Green, Kent, showed during last summer a very fine range of hybrid seedlings which embraced all manner of quaint, dainty and very pretty art shades. Mr. Marcham's aim is not to pick out varieties for naming but to maintain a strain which, planted *en masse*, will produce a veritable riot of colour, all the shades contributing harmoniously to a sumptuous feast of beauty. Messrs. G. Bunyard and Co., Maidstone, were among the early pioneers of lupin development, and both they and Messrs. Cheal and Sons, Crawley, have been very careful to purify and improve the pink variety of L. polyphyllus.

Messrs. Laxton Brothers, who studied fragrance and developed that valuable quality in their pleasing race of hybrids,

LUPINS IN ALL SHADES OF COLOUR ADORNING AN EARLY SUMMER BORDER.

yellow, a real beauty; Tangiers, apricot and yellow; and May Robinson, apricot and fawn. The "Regal" strain is by no means confined to these shades, although they are an outstanding feature. Firefly, for instance, is very bright—rosy scarlet being an apt description of its shade. Mrs. Jack Pearson is lavender with opalescent shading of rose; and Mary Harrison is blue with the glistening sheen of highly tempered steel. Rosea bicolor is rich pink and white. Downer's Delight, already referred to, is a rich ruby red, but this strain excels in shell pinks, rose shades, salmons and again in Cambridge blues, lavenders and lustrous purples. May Princess is specially fine in the last-named colour, and Downer's Pink Pearl is extremely fine in rose pink. Length of spike is a noteworthy feature in the whole strain, but Highlander (rose), Mount Everest (white) and The Forge (mauve) are among the longest spikes.

George Gibson of Leeming Bar has quite a number of varieties in what may be termed rosy lavender and mauve shades, while his Ruby King is an intensely dark purple with doubtless found L. arboreus a very useful breeder for their purpose, and although its tendency is to shorten spikes it compensates by greatly increasing their numbers. In southern gardens the arboreus hybrids survive winters if afforded some shelter from wind, as by a hedge or wall, while many worse plants than these are accommodated in unheated greenhouses.

Mr. T. Carlisle's Light of Loddon is unbeatable as a rich yellow lupin, and its season of flowering extends over a very long period, well into autumn.

Lighter in shade, but still beautiful, is Waterer's Sunshine, a plant that has sold in extraordinary numbers. Messrs. Waterer, Sons and Crisp have recently introduced another, and one of the sweetest and most elegant of all lupins. Dresden China is its name, particularly appropriate, for its delicate type of beauty almost compels one to handle it as though it were a fragile china flower.

The tree lupins themselves have been the subject of not a little attention. The ordinary yellow type and the white

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form were both improved by selection years ago in the Ditton Nurseries of Messrs. Barr and Sons, now of Taplow; but since the advent of Snow Queen a great advancement has been made in these extremely useful shrubs of conveniently moderate dimensions. T. Smith, Daisy Hill Nurseries, Newry, Ireland, did capital work upon this as upon many other good old plants. Quite a series of bewitchingly beautiful bi-coloured varieties emanated from this famous nursery, and whether one's tastes lie in the direction of soft mauves, lavenders and violets in combination with white, or toward brighter tones such as yellow and purple, cream and blue, orange and yellow, the Daisy Hill tribe is equal to requirements. L. I. ATRIS.

THE UPKEEP OF A LAWN

BY REGINALD BEALE.

WEEDS must, of course, come first, for the reason that they start giving trouble from the word "go" and never cease to vex. There are many sorts of weeds, and in order to eliminate them with the least amount of trouble and expense, it is necessary to divide them into classes and deal with them accordingly. In a new lawn many weeds must be expected, and they have got to come out if a good lawn is required, and the sooner they are taken in hand the easier it will be to eradicate them. The best method to adopt is to place a plank along the edge of the lawn, and while standing on it remove all the weeds and coarse grasses within reach, then step off the plank, turn it over and proceed as before. If the weeds are taken in hand when they are young and before they have had time to root deeply, they will come out quite easily, often by just pulling them, without the use of a tool, and little or no damage will be done to the surface.

Weeding old turf is an entirely different proposition; daisies and other surface-rooting weeds can be quite easily destroyed by the application of "Carterite," either in the autumn or early spring. The work should be taken in hand during still bright and fairly dry weather. Give each worker a distributor, which is a conical tin having a lid at the large end, at which it is filled, the smaller end having an opening ⅛in. in diameter, and instruct them to proceed as follows: Place the first finger of the right hand over the opening and fill the tin with the powder, which is allowed to escape from the tin by removing the finger for such an interval as may be necessary to allow, say, a saltspoonful to fall on a small plant, and so on. The quantity required for a given area depends upon the number of weeds on the turf, but on the average it works out at about 2 oz. to 4 oz. to the square yard. Large patches of daisies, self-heal, chickweed, clover, etc., should be removed bodily and replaced with clean turf or dusted heavily with "Carterite." If the latter method is adopted, bruise the clumps with the foot before the application, and renovate the bare places caused by the destruction of the weed, with grass seeds, a week or ten days later.

Plantains and other weeds of a similar habit are too strong for the above treatment and too small to poison, the only alternative being to remove them bodily with a three-pronged fork. The holes should be filled up with sifted compost and seed in the ratio of about a pailful of the former to a pound of the latter. If any deep holes are made by the removal of large weeds or tufts of grass, tamp the filling in with the handle of the fork until it is quite firm, otherwise it will settle and form cuppy depressions.

Dandelions and other weeds with long tap roots can be destroyed easily and rapidly without any back-aching labour by the use of Smith's Arsenical weedkiller, ejected on the crown of the weeds by the use of a weedkiller ejector. Prepare the weedkiller at double the strength recommended by the manufacturers, fill the ejector and screw in the plug. Search out the weeds—they are easily seen, particularly in the spring—and squirt a little of the weedkiller on each, regulating the quantity to the size of the weed. Two or three days later the foliage begins to wither and within a week the whole weed is dead from end to end. It is hardly necessary to point out that the poison should be kept under lock and key, and the hands and all implements should be washed immediately after use.

Coarse grasses may be cut out and replaced with good turf or grubbed out with a fork, or, if there are too many to be treated in this way, weaken them as much as possible by close cutting and slashing the hard tufty plants across and across the crown with a knife. In hopeless cases, where weeds are in such numbers as to defy ordinary measures, dress the whole area with "Carterite" by means of a dredger, at the rate of 4 oz. to 8 oz. to the square yard. The "Carterite" will scorch and burn everything, the turf included, but as a general rule the grass quickly recovers, while anything from 75 per cent. and upwards of the weeds are killed and the remainder can be dealt with individually later.

Clover is perhaps one of the most difficult weeds to deal with; it grows everywhere and on all classes of soils. When the plants first show themselves they can be easily removed by hand; but if they are allowed to spread and form large dense clumps—and they will very quickly, particularly if bones or other phosphatic fertilisers are used—it is very difficult to master. It can be discouraged by repeatedly dressing the turf with Carter's Anti-Clover Grass Fertiliser on the "little and often" principle, at the rate of from ½oz. to 1 oz. to the square yard, mixing the fertiliser with sufficient sand or sifted soil to increase its bulk to such an extent as to make its even application possible, allowing an interval of two or three weeks between each dressing, which should be watered in if necessary. Clover can be weakened to the point of extinction by cutting it as close as possible when the weather is hot and bright with a sharp scythe or horse clippers, or by tearing it up with a rake and cross mowing with the machine set low. It can be burnt out by dressing the patches with "Carterite" at the rate of 2 oz. to 4 oz. to the square yard, or they can be cut out and repaired with good turf.

Small plants can be removed by loosening the soil and following up the runners with a two-pronged steel dinner fork. This is very much like plucking a hare, but it can be and is done.

In all cases weed systematically and try out a system in order to obtain experience before committing oneself too deeply.

Worms are the most troublesome pests that attack turf; they riddle the soil and turf to such an extent that it becomes unnaturally muddy and soft, which cannot be corrected by rolling, and otherwise strong turf is made so tender that it soon wears out. They cover the surface with their evil-smelling slimy casts, which not only foul the turf, but when trodden and rolled down actually smother out the fine grasses, and the damage they do to the mowing machines is beyond belief. They work hardest in heavy soils, and although there is no apparent connection between worms and weeds, they are closely allied, as the slimy casts make wonderful seed beds for weeds and they are always found together, particularly in damp hollows. The more one studies the subject the more apparent it becomes that where they abound the turf is always coarse, weedy, muddy and soft under foot, and where they are conspicuous by their absence it is finer in quality, freer from weeds and cleaner and firmer underfoot. The worms can quite easily be destroyed by scattering Carter's Wormkiller over the surface at the rate of half a pound to the square yard, on a warm, dull, misty, muggy day, and watering it in with a hose, water-cart or cans. I am conscious that many keen gardeners are opposed to the destruction of worms in turf, but if they were to make a trial on a few square yards it would prove both interesting and instructive. The wormkiller is not poisonous to either animal or bird life; it will only kill worms and fish, and in consequence can be used with safety.

Assuming that the worms have been destroyed, soft muddy lawns can be made quite firm by top-dressing them with sharp sand, sifted cinders, breeze or charcoal, fine enough to pass through a ¼in. square mesh sieve. It is verging on the impossible to keep a grass path or lawn in good order if used in the winter, on anything approaching heavy soil, without destroying the worms and dressing it with one of the above-mentioned materials.

Fertilising is very important; and there are many lawns that look starved. If they were fed with Carter's Complete Grass

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Fertiliser, at the rate of 2 oz. to the square yard or 5cwt. to the acre, their expression would change, from haunting starvation to satisfied contentment. The fertiliser should be mixed with about three times its own bulk of sharp sand for heavy soils, and loam compost or the remains of an old hot-bed for light hungry soils, passing the whole through a fine mesh sieve before use in order to complete the mixture and exclude any small stones and other rubbish which might damage the lawn-mower.

Rolling and mowing are rather difficult subjects for discussion without taking up more space than has been allotted. These subjects have been dealt with in my book, "Lawns for Sports," so perhaps I may be excused for these short notes. All lawns should be rolled periodically during the autumn, winter and spring, choosing days when the ground is neither too wet nor too dry. For general garden use there is nothing to beat The Alexandra Double Cylinder Roller, manufactured by Messrs. Barford and Perkins in varying sizes from 14ins. in diameter and width to 24ins., at prices ranging from £2 15s. to £6 10s. There are all sorts of other rollers in wood and iron, one, the "Sarel" patent spike roller, 3ft. wide, price £6 7s. 6d., being particularly valuable for use before and after using fertilisers, top-dressings, etc., and also on soils that are inclined to pack and become stagnant.

Of mowing machines there are multitudes. Among small hand-machines, Ransome's "Marquis," and Shanks' "Caledonia" represent the cream on the market; while the "Dennis," the "Godiva" and motor mowers manufactured by Ransome's and Shanks' give a choice sufficient to satisfy the most fastidious. There are many, however, who possess good machines of various makes which are uneconomical because they are beyond the power of one man, and yet one hesitates to scrap them and purchase a motor mower. The "Rendle" motor mower and roller attachment solves this problem most satisfactorily. This power unit can be attached to any make of roller machine with a cut from 16ins. to 30ins. or any type of roller up to 20cwt.; in fact, a handy man can adapt it to push anything, within limits, that is pushable. Many think that these attachments are makeshifts, and so they are in a sense, but when it is realised that in combination with a first-class mowing machine they give a polished finish which no motor mower will give, with a minimum of physical effort, they are well worth consideration. The cost of installing an attachment or a motor mower is fairly heavy, but there is no doubt as to their economy. My good friend and head-gardener, Mr. Walter Cole, who is as keen as he is efficient, which is saying a good deal, has proved that he can get through the mowing at a saving of at least one-third in time, and that the operator at the end of the day is fresh instead of being, as he calls it, whacked to the world. The reason, of course, is simple; anyone can walk behind a machine, guide it and go at a greater pace, with less fatigue, than if one has to use all one's strength in pushing it along.

Before taking in hand the renovation of a lawn, mow the grass as close as possible and then test the soil for lime, and if it is deficient, apply a dressing in the form of carbonate of lime at the rate of 1lb. to the square yard or 2 tons to the acre. Granted that the correct season to apply lime is the late autumn or early winter, it can, however, be used at any time without loss provided that there is likely to be sufficient rain to wash it in and fertilisers are not applied until it has been washed in. The lawn should then be dressed with Carter's Complete Grass Fertiliser or, if clover is troublesome, use an Anti-Clover Grass Fertiliser at the rate of 2 oz. to the square yard or 5cwt. per acre, mixed with two or three times its own bulk of sifted compost, soil or sand in order to increase the bulk and so make an even application possible. Then rake the surface with care and judgment, with the object of working in the fertiliser, tearing out the dead herbage and moss and finally opening up the soil and so forming a seed-bed. Sow the raked area with a mixture of grass seeds carefully selected to suit the soil and match the existing turf at the rate of from ½oz. to 1 oz. to the square yard, according to the condition of the turf, sowing the seed thickly where the turf is dead or thin, and thinly where it is fair to good. If in doubt as to whether a mixture with or without rye grass should be used, send a small but representative sample of the turf with your order and leave the rest to your seed merchant. Rake the seed in carefully and, if possible, cover with sifted compost, old hot-bed soil or, when dealing with clay, with sand or light sandy soil. Finish off by raking over the surface carefully and roll with a light roller.

It is not an easy matter to make or improve a lawn; it requires a lot of patience, hard work and knowledge, but it is surely worth while to make the attempt, because nothing sets off a garden so much as a well tended lawn.

If turf is fed, kept free from weeds and worms and, if the soil is heavy, dressed with charcoal, cinders, breeze or sharp sand, it will go a long way to produce the desired result.

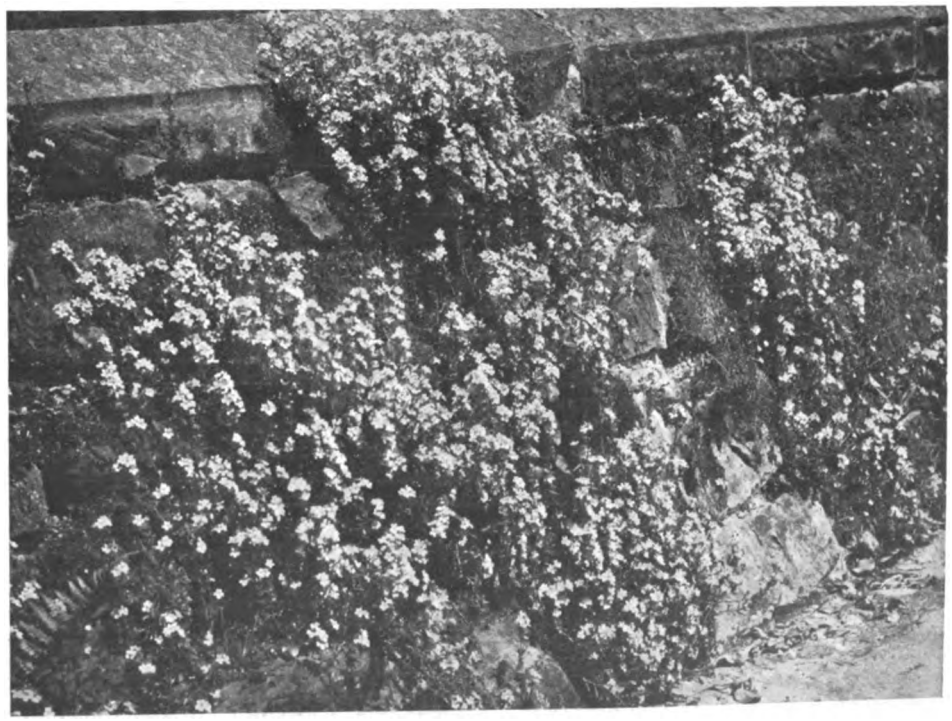
A BEAUTIFUL PLANT FOR WALL DECORATION

FEW alpine flowers are so amenable to wall culture as this little bright-coloured plant (Erinus alpinus) from the Pyrenees, which is easily established on such places by merely shaking a few of its seeds over the face of old walls, battlements, ruins and stony places.

It does not matter what the wall is built of really, so long as it lies dry and fully exposed. August is a good month for sowing or scattering the seeds, and the plants growing on the section of old sandstone wall here depicted were sown during that month three years ago. Here we get an abundance of ripe seed each year, and therefore we scatter it about in likely places with a lavish hand, often with charming results.

If scattered on walls already furnished with aubrietias, it succeeds those plants in bloom, and so we grow it in this way, also on old brick walls to which roses are attached it gains a secure footing and is annually a source of interest and charm, for in addition to the type which bears racemes of violet-purple flowers there is a very pretty white and bright rose variety.

Unfortunately, it is often planted on flat ground, which is fatal to this little sun-lover, as it invariably succumbs the following winter. E. MARKHAM.



MASSES OF ERINUS ALPINUS ON THE ROUGH SANDSTONE WALL AT GRAVETYE

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LILIUM AURATUM

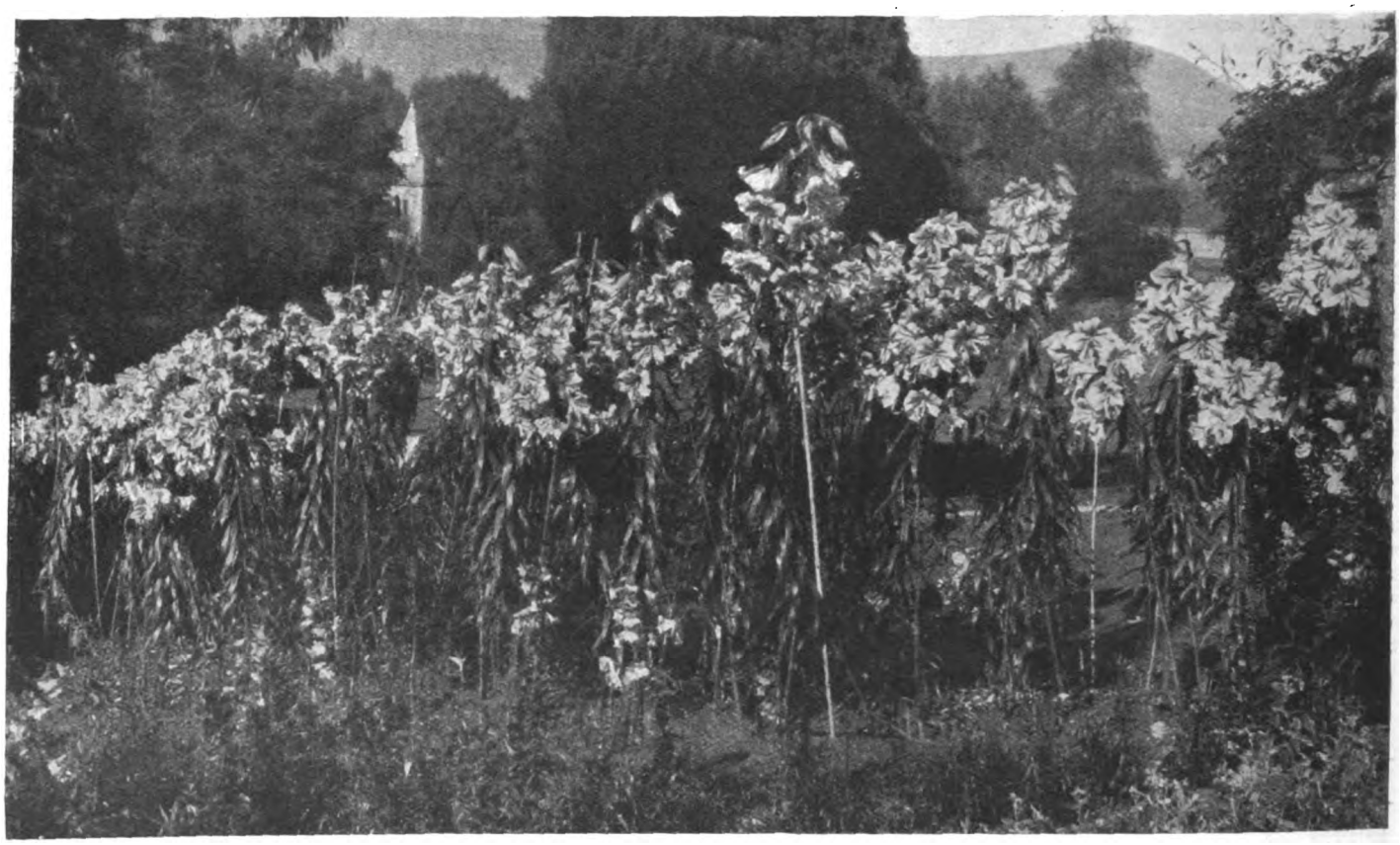
BY A. GROVE.

THE SECOND HALF OF MR. GROVE'S ARTICLE ON LILIUM AURATUM, WHICH HE HAS WRITTEN IN ANSWER TO THE CORRESPONDENCE WHICH HAS LATELY APPEARED IN "THE GARDEN."

(*Continued from page 75.*)

AS illustrating the transport difficulties the pioneers of the export trade had to contend against, the story printed in THE GARDEN, Vol. LX (1901), page 290, is illuminating. It is from the pen of Mr. Alfred Unger, then a well known horticultural merchant in Yokohama, and concerns an acquaintance of his, whom we may call Mr. X. Early in 1866, at his sat since, but, needless to say, I gave up exporting lily bulbs, though often requested to do so since."

The use of clay as a protective material for the bulbs seems to have been suggested by Dr. Alexander Wallace of Colchester, at that time an enthusiastic lily grower, and one of the originators of the New Plant and Bulb Company, a local



LILIUM AURATUM AT BRODICK CASTLE, ARRAN.

father's house in England, Mr. X. met a traveller who had just brought back from Japan a case of bulbs of L. auratum, which was the horticultural novelty of the moment. The traveller sold the bulbs at a guinea apiece—almost enough to defray the expense of the journey home from Japan. This so fired X.'s father that he told his son, who was about to sail for Japan, that he was to obtain a quantity of these bulbs and ship them home, the father being firmly convinced that he could sell them without difficulty. The sequel is best told in the son's own words: "To make a long story short, I collected, or rather had collected for me, about 400,000 bulbs, big and little, some of them very big, at a cost of one to three or four rin [coins of extremely small value] each. Not being able to return myself to Yokohama, I sent them down in a sailing ship my firm had chartered, with instructions to forward them by Peninsular and Oriental steamship through to Southampton. I had the cases packed so that the bulbs were covered with a thin layer of loose earth.

"Unfortunately the summer had been very rainy and the bulbs were full of moisture. My father contracted to sell the whole lot at from 1s. to 5s. a bulb, and went down to Southampton to take delivery; but to his horror there was not one single bulb left, only leaf-mould, and I lost my chance of making my fortune this first year. Besides this, I lost the freight, which amounted to £150, if I remember rightly. My father built a summer-house out of the cases, in which I have

concern which imported considerable numbers of Japanese bulbs. Aware that camellias were successfully exported from Japan to the Cape with the stems and leaves enveloped in clay, Dr. Wallace proposed a trial of the material with lily bulbs. It proved so satisfactory that it has since been extensively used, and, though by no means ideal if only because of its weight, the method brought importers' losses within reasonable limits. But of late years improved methods of stowing perishable cargo and greater care in ripening the bulbs have made it possible to return to the use of dry powdered earth as a packing material. Its use involves considerably less handling and labour, both to consignor and consignee, and before long it will probably entirely supersede the system of clay balling formerly in vogue. That method will probably always be necessary in the case of bulbs of early-flowering Japanese lilies, such as LL. japonicum and rubellum, for while they come on the Yokohama market in June and might just as well be exported then, custom ordains that the bulbs must be kept till the general export of lily bulbs begins in the autumn. To keep the bulbs from shrivelling during the intervening four months, the use of a clay envelope can hardly be avoided. From the date of the initiation of the Anglo-Japanese overland post, up to 1914, the writer frequently had parcels of bulbs of LL. rubellum and japonicum from Yokohama by post, *via* Siberia. They usually reached England about the middle of July and, provided the season had been favourable for the

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ripening of the bulbs, arrived in excellent condition without any packing.

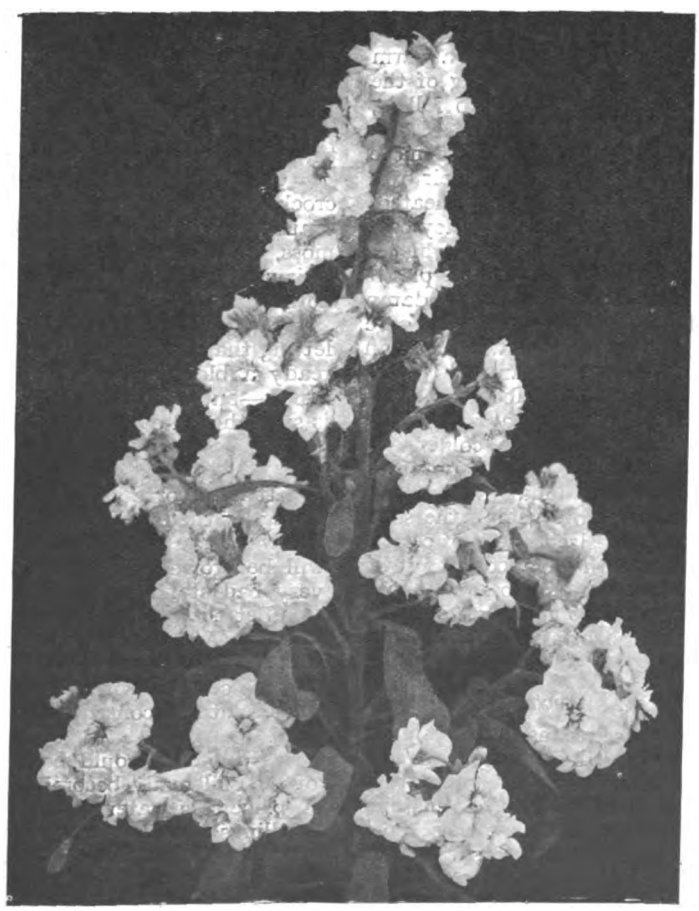
Once in the hands of the average gardener, probably not 5 per cent. of the bulbs of L. auratum exported from Japan ever see more than one year of existence—a deplorable state of things, due to a variety of causes. In the first place, when this species was introduced it was generally regarded as a pot plant, as was, and is, L. longiflorum. This was possibly due to a mistaken notion that such a gorgeous plant of the East could not be hardy. At that date, too, the cultivation of exotic lilies as garden plants was seldom practised. But whatever the reason, the tradition grew up that once they had made their first display as pot plants the bulbs were to be discarded, and so they were usually thrown on the rubbish heap—a a pernicious system still practised in numerous cases. Then again, the cultivation of L. auratum is but little understood, and so we see it planted in soils and situations where nothing can save it. Only a tithe of those who buy the bulbs realise that lime is as much a poison to it as to the majority of rhododendrons, and for some reason attention is seldom drawn to the point in the catalogues of those who sell the bulbs, or by those who write about them. The writer constantly sees it stated in print that " a suitable compost for L. auratum consists of equal parts of fibrous loam and leaf-mould or peat, with a liberal allowance of sand or grit." Not a word about lime, yet probably half the loam in the kingdom is charged more or less heavily with lime, as half the leaf-mould and much of the grit certainly is.

For reasons for which no entirely satisfying explanation has been forthcoming, L. auratum always seems to have taken more kindly to cultivation in Scotland than in England or Ireland. By a process of elimination we reach the conclusion that this must be due more to climatic conditions than aught else, for Scotland has no advantage over the rest of the kingdom or Ireland in the matter of soil, while English and Irish cultivators are as keen as their Scottish colleagues. In McNab's day, the Edinburgh Botanic Garden was famous for L. auratum, and at the present time it is doubtful if there is any colony of the lily in Britain comparable to that in Mrs. Lemon's garden at Brodick in the Isle of Arran, or in Major Fleming Hamilton's garden at Craighlaw. As lilies go both these are well established plantings, and, so far as the writer knows, there is now nothing like them south of the Border. In the 'seventies and 'eighties, Mr. MacIntosh of Weybridge was remarkably successful with L. auratum ; and Mr. G. F. Wilson, the enthusiastic amateur of lilies, to whom we owe the R.H.S. Garden at Wisley, cultivated them to excellent purpose at Heatherbank, Weybridge. But as a student of the genus, Mr. Wilson did not attach overmuch importance to the mere numerical superiority of one plant over another in the matter of blooms ; for, once a certain number is exceeded, the plant grows like a top-heavy giant, the stem becomes overloaded and loses both proportion and balance and, incidentally, the critic's respect. And there is no difficulty in persuading L. auratum to outdo itself. The point turns on feeding as much as anything else, and if your correspondent, Mr. London, as well as Mr. Clarke, who in the issue of THE GARDEN (November 29th, 1924, page 811) thought that a garden plant with twenty-seven blooms might constitute a record, will refer to your own columns in years past and to the columns of your contemporaries—a pleasant and profitable occupation for any gardener—they will find that such plants are not even in the first flight, for there are records of a garden plant with a single stem carrying seventy-eight blooms, and of a multi-stemmed pot-grown bulb with 208 blooms ; specimens with fifty blooms are common enough. No species seems more prone than L. auratum to that scourge of the lily grower's operations—fasciation. Plants afflicted with this malformation, which may be congenital, are robbed of their naturally beautiful habit and become the ill-shapen, mop-headed monstrosities so well portrayed in the photograph which accompanied Mr. Gunstone's letter.

EAST LOTHIAN STOCKS

I HAD not grown this stock previous to taking charge of an important garden in Scotland, but finding that it was regarded with great favour I decided to try it. This I did with more success than I expected, and was so impressed with its freedom of flowering that on returning to take charge of a garden in England I introduced the East Lothian stock. I gave it better treatment than I had practised in Scotland, and found that it was well worth the extra trouble. My method may be of interest to readers.

A good strain of seeds is imperative, and this is not difficult to obtain from our leading seedsmen on either side of the Border. The seeds should be sown some time during February. I have tried sowing in January, but did not find that there was any advantage in so doing. The seeds are sown in a shallow box or pan in the usual way, in a temperature of 50° Fahr. I always have a dread of damping with stocks, and to frustrate this I like to prick off the seedlings when they are quite tiny. They are then carefully planted in a box at 2ins. apart. As another precaution against damping I make sure that the boxes of seedlings are so placed that they do not catch any of the spray when other plants in the house are being syringed.



A FINE SPRAY OF EAST LOTHIAN STOCK.

The seedlings are kept in a warm house, but are given plenty of light and a position fairly close to the glass. Not until the young plants show a tendency to become crowded are they moved from the box. The plan then adopted may seem rather unorthodox (in fact, I regarded it so myself when I first tried it). It is to pot the plants into 3in. or 4in. pots, but in this case the end justified the means. If the plants are to receive no later potting they are put into 4in. pots, but if it is intended, as I advise, to give them the benefit of another potting, then the 3in. size is chosen, as there is then the opportunity of moving the plants into 5in. pots. I have even tried some in 6in. pots, but favour the 5in. for preference. Any good potting soil that is available at the time is used for potting the plants, and when they have started to grow in the new soil sufficiently for a few roots to be seen if a plant is removed from its pot, the plants are given a cooler and more airy atmosphere. Shortly after they are nicely establish-

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in their 3in. pots they may be given cold-frame treatment. The removal of these pots will probably take place about the middle of March, and an endeavour should be made to get them potted into their larger pots before the end of April. This will give them an opportunity of being well rooted by the time they are planted in the beds, which will generally take place about the last week in May. I have usually had them commence flowering during the first week of June. This can only be done by sowing the seeds early. If the sowing is done at the same time as is usual for the ten-week stocks the season is well advanced before the flowering commences.

It is always a good plan to grow in pots several more than are necessary to fill the beds. This is advisable first of all on account of the possibility of some of the plants collapsing, as does sometimes happen, and also because there is an uncertainty about all the plants coming double. To a large extent this contingency is provided against by buying the seeds from a good firm, but no firm can guarantee more than a fair percentage of doubles. The plan of growing the stocks in pots and keeping back a reserve is an insurance against failure in this. The reserve plants should be kept in the pots till all the plants in the beds have shown whether they are proving to be double or otherwise. The pot plants will naturally show their flowers, and double ones can be substituted for single ones. Even then it is wise to keep a few in pots in case there should be a collapse of any plants later in the season. These reserve plants could be kept going with a little manure water, and if not otherwise required would flower well in the greenhouse.

The plants grown in the beds, as described, will produce one central spike and often there will be quite 12ins. of flowers. As this central truss goes out of flower it should be removed, when side growths will flower in profusion. I have counted over fifty flowering side growths on a plant at one time, and the plants themselves have measured quite 18ins. across. The flowers are very useful for cutting.

A very pleasing bed has been made by mixing these stocks with heliotropes. Standard heliotropes were planted at 4ft. apart, and the stocks at 2ft. apart, in square fashion. Centrally between four stocks were planted dwarf plants of heliotrope. The effect produced was quite pleasing, both from the point of view of flowering and fragrance.

There is not so great a variety of colours in the East Lothian stocks as there is in the ten-week, nor do I think that there is quite so much fragrance, but surely there is room in the ordinary garden for both kinds. I have had the East Lothians start flowering on June 1st and continue to do so till they were removed on October 23rd to make way for spring-flowering plants.

WILLIAM F. ROWLES.

HOW TO HAVE AN EARLY FLOWER GARDEN

TO ENSURE A PLENTIFUL SUPPLY OF FLOWERS IN THE EARLY SUMMER MONTHS, THE FOLLOWING CULTURAL HINTS SHOULD BE ADOPTED.

IN view of the need for economy, it is not unlikely that much of our formal bedding out will this year be replaced —and it can be very charmingly replaced—by using plenty of flowers of the "hardy annual" type. The question sometimes arises, "Can an *early* result in our flower beds be provided by these means?"

The present writer's opinion is based on experience and it is the only basis, certainly, which the Editor or the readers of THE GARDEN may be expected to accept. As an opinion it is, however, a little unusual, perhaps it may even be called paradoxical. For the truth seems to lie in raising the annuals for early display a very little *later* than is usually attempted.

One is not speaking now, of course, of cases where a warm greenhouse can be consecrated expressly to the raising of the stock required, with another of cooler temperature to follow, and cold frames to finish off.

One is thinking rather of the less luxurious but more usual conditions of those amateurs who like to do their own gardening, but have only one greenhouse (and that unheated) in which to attempt everything and to accomplish all they can. To such enthusiasts—and they are many—one would whisper in confidence: "Don't start *too* early, if you wish your plants to get ahead. January and February spell fog, frost, damp —and disaster! Begin this work in March—and with care and common-sense it is almost certain that you will have an earlier—and certainly a healthier—stock of annual plants with which to fill your borders than your neighbour who has perhaps adopted the more usual practice of January sowing."

These hints apply more particularly to the colder and wetter parts of the country. But conversely, if for any reason there has been delay in starting to raise annuals a month or two before March where conditions are more genial, the same practice can be applied of sowing a good-sized batch of certain of the more interesting sorts this month in a corner of the cool greenhouse or in a cool frame rather than to sow directly out of doors. And the warmer conditions may, generally speaking, be counted upon here also, to bring about the same speedy and excellent results.

PREPARING THE BOXES AND POTS.

The first step is to take pots or seed pans (or the shallow wooden boxes known as "flats"), and get them ready for sowing. If shallow boxes are preferred and none is at hand at the moment, the fishmonger may be found to "oblige" his customer with something very suitable; and the fact that these boxes have held salted fish will make them none the worse for horticultural purposes!

See that the pots, pans, or boxes are properly cleaned and ied, and also that their slits or holes are sufficient to allow water to pass away easily, since the first essential of this, as of practically all successful cultivation, consists in securing *free drainage*.

The next thing to do is to fill the pots or boxes with light soil prepared for the purpose. Good fibrous loam—the top soil of an old pasture—is the right material to form the staple, and with it should be mixed well decayed leaf-mould from the garden heap, in proportion of one in three parts (to lighten the mixture)—finally adding a twentieth part of sharp silver sand. This last is in order to keep the whole medium porous and "open"—again for the purpose of securing perfect drainage throughout.

These materials having been satisfactorily mixed upon the potting bench, the "compost" may be left for a day or two so as to become "warm." Care must be taken that it is neither too moist nor too dry when the moment comes to turn it over for the last time before putting to use.

Cover the drainage holes of the pots as usual with broken crocks (placed hollow side upwards), and on the top of this drainage material place a little half-decayed leaf-mould, or moss, or better still some of the fibrous part of the loamy soil. This will further prevent the fine soil from being washed away downwards and choking up the drainage.

Then proceed to fill up pots and boxes with fine soil, letting that for the very top be sifted with a fine sieve. Have ready a block of wood of suitable shape and press the soil firmly—but not so as to harden it—seeing, of course, that it is smooth and even before doing so.

ECONOMICAL SOWING.

It is important in sowing annual seeds to distribute these thinly, or there will certainly be a great deal of perfectly needless waste; and, more disastrous still, the individual seedlings will be crowded from the outset and consequently obtain a very bad start.

Let the seeds be covered lightly by scattering sifted soil, and pans and boxes can then be put in the greenhouse or frame, standing them as close to the glass as is possible. They may be covered with sheets of brown paper in order to protect from light and consequently to hasten germination in a healthy way.

No water should be given unless there is an appearance of the soil really becoming dry, and a syringe should be used in place of a water pot. Over-watering has ruined millions of seedlings; and if any sign of Pythium De Baryanum (the dreaded "damping-off" disease) should occur, the water supply must at once be decreased and more air be admitted. "Damping-off" will first be visible by some of the seedlings turning pale and then falling over sideways; the disease

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quickly spreads in suitable conditions, but cannot flourish otherwise than in a warm, moist atmosphere.

So soon as the first true leaves are apparent between the "nursing leaves" of every seedling, transplanting or "pricking off" will begin. This means, of course, that each group of seedlings will be lifted carefully, which may be done by gently pushing the wooden label (on which its name is written) underneath the patch, and then planting each individual seedling (of the group lifted) an inch or more from its fellow in a fresh box of soil. The holes are naturally made with a small wooden dibber shaped like a blunt-pointed pencil, the rootlets of each tiny plant being allowed to "touch bottom" before the soil is drawn round them and pressed firm. This is usually done with the dibber and the first finger of the left hand—but care must be taken not to let the point of the former come near to the tender stem of the plantlet.

There are multitudes of hardy and half-hardy annuals which may be relied on to give a splendid show in the garden this summer. Some of them are useful for cutting, and most of them may be sown at the present moment in the way suggested, hardening off by standing in their boxes out of doors, and eventually planting out in April or May. HELEN COLT.

GREENHOUSE FLOWERS AT VINCENT SQUARE

THERE was a varied collection of flowers at the Royal Horticultural Society's Hall, Vincent Square, Westminster, on February 10th. Many were hardy, while others again were grown under glass. It being the occasion of the Annual General Meeting of the Society, there was a large attendance. Chief among the greenhouse flowers were the cyclamens, while from the unheated greenhouse came the numerous alpines in great variety with saxifrages much in evidence. Fruits and vegetables were also well represented, and various exhibits of a miscellaneous nature completed the extensive list of those showing. With the better weather during the past few days the majority of the flowers were in fine condition and were much admired.

There are many strains of cyclamen on the market, but few which can be called really reliable. Success with cyclamen depends largely on the quality of the seed, and unless the best is used the flowers will be few in number, poor in colour, and the percentage of germination will be low. The Caledonian strain of cyclamen has been introduced within the last twelve months. The value of this strain, which was raised by the Cyclamen Growers and Floriculturists of Luton, of which J. W. Forsyth is the manager, is rapidly being realised by an increasing number of people. Anyone who was present at the Show last week could not help being impressed by the excellent exhibit of the Caledonian strain. The size, brilliancy and purity of colour of the flowers were undoubtedly above the average. Not only were they exceptionally robust, but each plant bore a larger number of flowers than is usually found on plants of any other strain. Some of the frilled varieties were particularly charming and were superior to the old type of frilled, which was inclined to have drooping petals. The finest of the frilled varieties was Lady Helen Cassel, one of the latest introductions. The rosy pink flowers were borne on erect stiff stems, and the habit of the plant was very robust. The vivid scarlet of Scarlet Queen and the deep velvety crimson of Improved Brilliant would be considered by many people preferable to Queen Mauve with its large bluish pink flowers; but the question of colour is a matter of individual taste. From any other point of view there was nothing to choose between these three varieties; they were all outstanding in form, size and quality. One or two new varieties and several sports which were exhibited were interesting.

Messrs. Bath of Wisbech had a small but pleasing and well arranged stand of bulbs, including tulips, hyacinths, daffodils, crocuses, and Iris reticulata. The yellows of such tulips as King of the Yellows and Yellow Prince combined well with the colourings of the hyacinths and daffodils. Of the

A NEW VARIETY OF MERIT, FREESIA ORANGE KING.

THE EARLY FLOWERING PRUNUS AMYDALUS VAR. PRÆCOX.

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narcissus varieties, Soleil d'Or (yellow), Fairy Queen and Sycamore (white) were outstanding.

Messrs. Reamsbottom's name has become synonymous with St. Brigid anemones, and it was indeed a pleasing sight to see a collection of these in all shades of colour, varying in size from 1½ins. to 3ins. across, and more especially to learn that they were cut from the open border. For a constant succession of varied bloom these St. Brigid anemones are excellent. They always call forth admiration at any season, and they are ideal for cut flower purposes. Their culture is so simple and the results so good that they should be more extensively grown.

Among the fruit exhibits, that of Messrs. Rivers and Sons attracted much attention. It consisted of large pot plants of various citruses. Well fruited specimens of St. Michael's orange, which is the ordinary orange of commerce, were chiefly in evidence, while a few large fruits of that singular variety, Embiguo (the Navel orange) were also shown. There were in addition several other varieties of lemons and oranges, representative of the large stock which Messrs. Rivers carry.

The Kabschia saxifrages, although not yet in full flower, were the chief interest among the alpines. Their appearance marks the real beginning of the year in the rock garden, for if we take S. Burseriana as the representative of the family, they show all the qualities for which we value the alpines as garden plants—the compact, neat design, relatively large flowers and cool brilliance of colouring.

Messrs. Tucker showed the variety Tridentina of S. Burseriana, which is second to Gloria only on account of its more widely separated petals which show a little daylight at the base; the variety crenata, with solid, wavy petals slightly scalloped at the edges; and more striking than either their new hybrid, Brookside. This, from the gardener's point of view, is a magnified Burseriana, a Gloria, its flowers are the largest of the group, but well formed of regular, overlapping petals, which, in spite of the parentage (S. B. Gloria and S. Paulinæ), are a pure, brilliant white.

Another fine, free-blooming hybrid is S. Burseriana sulphurea (S. B. Gloria × S. Faldonside), whose large flowers of cool, evening primrose yellow associate well with those of the type. Messrs. Tucker also showed some of the newer Engleria hybrids, S. kewensis, whose purplish pink flowers on long stems clothed with magenta hairs make a much more pleasing picture than the description suggests. S. Mariæ Theresæ is like it, but superior in the frostiness of its rosettes, though its flowers, of a purer pink, are a little starry. S. Boedkleri, another Engleria hybrid, is an oddity with small biscuit-coloured flowers suffused with red.

Messrs. Prichard's saxifrages were mostly their own hybrids of S. lilacina, the Himalayan that introduced a new colour into the group. S. Delight seems one of the best, with fairly large flowers of lilac pink on short stems. S. Gewgaw is unhappily named, for its pure white flowers with purple anthers are quietly beautiful and the whole plant is very neat and compact. Double flowers are not much desired in alpine plants, but the double pink Valerie Kevil has a great deal of charm and would make a good companion to Silene acaulis fl. pl. in a toy garden.

A single plant of Sarcococcus ruscifolius filled the air with a heavy tropical scent, though it is perfectly hardy. It is curious that it is so seldom seen in gardens, for it flourishes under trees and its polished evergreen leaves are cheerfully decorative throughout the year. Parochetus communis might also be seen more often, for, although it comes from Nepal, it seems hardier than might be expected.

Messrs. Waterer showed a good group of the purple Sisyrinchium grandiflorum against a background of Narcissus triandrus albus, some varieties of Iris Sind-pers, including a reddish purple one, rather flatteringly called "Ruby," and a well flowered bush of Osmanthus Delavayi, whose merits have already been described in THE GARDEN.

Messrs. Cheal built up a series of terraces and little cliffs of brown limestone, which they made very gay with Anemone fulgens, Rhododendron præcox, hybrids of Primula Juliæ and pink hellebores.

Among the other exhibitors were the following:

Azaleas.—Messrs. William Cutbush.

Carnations.—Messrs. Allwood Brothers, C. Engelmann, Stuart Low and Co.

Citrus.—Messrs. Thomas Rivers and Son.

Crocus.—Mr. E. A. Bowles.

Cyclamen.—Messrs. Stuart Low and Co.

Fruit.—Messrs. Bunyard and Co.

Irises.—The Rev. H. Rollo Meyer.

Nepenthes and Stove Plants.—Messrs. L. R. Russell.

Orchids.—Messrs. Charlesworth, Cowan and Co., Flory and Black, Lieut.-Colonel Sir George Holford, K.C.V.O., and Stuart Low and Co.

Polyanthus.—Messrs. G. A. Miller.

Rhododendrons.—R. Gill and Son.

Roses.—Messrs. Elisha Hicks and George Prince.

Shrubs and Alpines.—Messrs. Bakers, W. Cutbush, H. Hemsley, Carter Page and Co., G. Reuthe, R. Sheppard, G. Whitelegg, F. K. Wood, and Skelton and Kirby.

Topiary.—Messrs. John Klinkert.

Vegetables.—Messrs. Dobbie and Co., Sutton and Sons, and French Intensive Gardens.

NEW AND RARE PLANTS.

Freesia Orange King.—The flowers of this variety are of fairly large size with petals of good substance. In colour they are deep yellow tinged with orange which is well into the throat. They are borne on tall stiff stems about 1ft. in height and have a haunting somewhat peppery fragrance. It appears to be a very free-flowering variety. Award of merit. Shown by the Rev. J. Jacob, Whitewell Rectory, Salop.

Freesia Lemon Queen.—Another variety raised by Mr. Jacob. The flowers are of a delicate lemon yellow in colour with a delightful fragrance, not so pronounced as in Orange King. They are large and carried on tall erect stems. It appears to be a free-flowering variety and one of considerable merit along with its neighbour. Award of merit.

Prunus Pseudo-cerasus.—This is the typical form of this cherry, which was first described by Lindley in 1826, and the flowering sprays shown are taken from the only old plant in cultivation in this country, which is now a tree about 16ft. high in the Cambridge Botanic Garden. The flowers are borne on short racemes containing many blossoms, which provides for a long flowering period of over six weeks. In size the flowers are about ¾in. across, with the petals jagged at the apex. In colour they are white tinged with rose. The specimens exhibited did not show the real beauty of the flowers, as many were unopened. The stems are characterised by a number of warty growths. Award of merit. Shown by the Director, Cambridge Botanic Garden.

Salix cinerea var. Medemii.—This is a variety of the ordinary grey willow. Sprays of the male catkins were exhibited on naked shoots. These are silky and of much the same size as in the type, varying from ¾in. to 1¼ins. long and from ⅛in. to ¾in. wide. The variety is earlier flowering than the type. It is of no great beauty, as far as one could judge from the sprays shown. Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

Galanthus Byzantinus.—This variety is very close to G. Elwesii, probably intermediate between that species and G. plicatus. The flowering stems are long, carrying large drooping graceful flowers. The outer segments are oblong, with the apical lobes somewhat reflexed and crisped. Award of merit. Shown by Mr. C. T. Musgrave, Hascombe Place, Godalming.

Prunus Amydalus var. præcox.—This is a variety of the type which only differs in the fact that it flowers a fortnight earlier. The flowers are large, 1in. to 2ins. across. Each is carried on a short stalk. In colour the petals vary from rose to white. First-class certificate. Shown by the Director, Royal Botanic Gardens, Kew.

ORCHIDS.

Miltonia William Pitt, Stamperland var.—This beautiful variety bore four flowers of deep crimson colour, the base of the labellum yellowish. In formation closely resembling those of the well known M. vexillaria. Award of merit. Shown by Mr. Robert Paterson, Cathcart, Glasgow.

Cypripedium Gold Mohur (Goliath × Lady Dillon).—In this novelty the broadly developed dorsal sepal has an undulating margin bordered with white, the main area being deep amber yellow, with slight spotting of a dark purple colour; petals and labellum light brownish with a bright sheen. Award of merit. Shown by Mr. G. F. Moore, Chardwar, Bourton-on-the-Water, Glos.

Cypripedium Robert Paterson (Hera × memoria F. M. Ogilvie).—The white dorsal sepal of this flower is heavily spotted with crimson-purple, the base greenish, and the broad petals yellowish with the upper part shaded reddish brown. Award of merit. From Messrs. Flory and Black, Slough.

Cattleya Caroline splendens (Percivaliana × Enid).—The spike bore five large flowers in which the labellum was fully developed and of bright purple colour. Award of merit. From Messrs. J. and A. McBean, Cooksbridge, Sussex.

Cymbidium Redstart var. Crimson Lip (Dryad × Pauwelsii).—This pretty hybrid had a spike of twelve flowers, rose tinted, the labellum blotched with crimson, and the column rose coloured. Award of merit.

Cymbidium Butterfly, Westonbirt var. (insigne × Lowio-grandiflorum).—A showy plant, the spike carried no fewer than twenty-four large flowers of yellowish colour, the labellum marked with crimson. Award of merit.

Cymbidium Warbler, Westonbirt var (Gottianum × Holfordianum).—A charming hybrid, the robust plant bore two spikes, with five and seven flowers respectively, of light greenish yellow colour, delicately spotted, the labellum white with a few crimson lines and spots. Award of merit.

Cymbidium Curlew, Westonbirt var. (Butterfly × Alexanderi).—The spike bore eleven flowers of yellowish green tints, the labellum blotched and lined with crimson. Award of merit.

Cymbidium Lapwing var. roseum (Butterfly × Miranda).—A pleasing contrast of colour, the spike of seventeen flowers had the sepals and petals of carmine-rose colour and the labellum brownish with reddish spottings. Award of merit.

The last five plants were included in the wonderful group of cymbidiums shown by Lieutenant-Colonel Sir George Holford, K.C.V.O., Westonbirt, Tetbury, and to which a gold medal was awarded, with a silver-gilt Lindley medal to Mr. H. G. Alexander in recognition of his cultural ability.

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CORRESPONDENCE

RHODOSTACHYS ANDINA.

SIR,—The plant represented in your issue of January 17th is Rhodostachys pitcairniæfolia, not R. Andina. It is figured in the *Botanical Magazine*, t. 8087, and is easily recognised by the brilliant red of the smaller innermost leaves at the time of flowering and also the bright violet-blue of its petals. R. Andina has pink flowers and the inner leaves remain green. Its leaves are covered on the underside with white scales which give the plant a silvery effect very distinct from that of the dark green of R. pitcairniæfolia. R. Andina is figured in the *Botanical Magazine* in t. 7148, and a good illustration of it appeared in the *Gardeners' Chronicle* for July 20th, 1918, page 24, from a plant that flowered in the Cambridge Botanic Garden. I have grown both these species in the open with slight overhead protection in winter for many years, and find R. andina much the hardier of the two. I saw several plants of R. pitcairniæfolia in flower in Mr. Arkwright's garden near Plymouth in January.—E. A. BOWLES, *Waltham Cross*.

IRIS TINGITANA.

SIR,—I wonder if any of your readers have found difficulty in flowering Iris Tingitana. I have treated the bulbs like freesias, grown on in a cold frame, and brought into moderate heat, but though they throw up strong growth, I get no flower. I hear that my neighbours have the same trouble, though they have tried stove heat and the bulbs came from another source.—B. K. G.

ALUM FOR SNAILS AND SLUGS IN THE GARDEN.

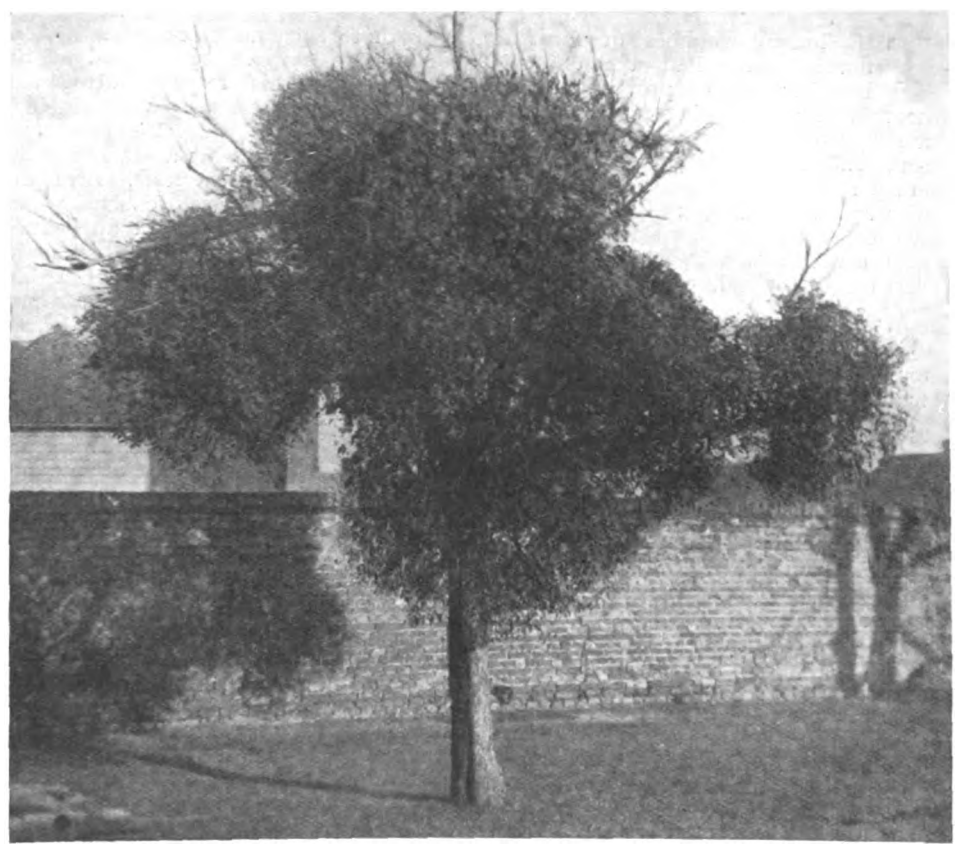
SIR,—Alum is applied in the powdered state merely because it is the most convenient form in which it can be used dry. In this state it is, of course, a little dearer than in the lump, but anyone who cares to take the trouble may very easily reduce the lumps to a fine powder by pounding or grinding. But for use in the liquid state this is unnecessary.

So far as I have been able to make out, the alum loses its effect after a time, but I cannot say precisely how long. So long as it remains dry, however, it appears to be quite effective, and the renewals of the sprinklings are a very simple matter. The main point, however, is that it *destroys* the pests, and that every time an application is made there is a reduction in the numbers, whereas such things as salt, soot, etc., are merely preventives. If plants are sprinkled with it before rain, the material is, of course, washed off, but in the process it is carried into the soil, where there is a good chance of it reaching some of the pests, and more especially of their eggs, which is equally important, while the foliage seems to be made distasteful to them for the time being. I have tried it on isolated strawberry plants growing near a grass edging in which slugs and snails harboured, and I found that an occasional sprinkling around the plants effectively protected them against attack, while in the case of unprotected plants the fruits were all eaten. I have no glass except a cold frame for general purposes, but I have found that alpines, for which slugs and snails have a particular liking, especially in the seedling stage, such as campanulas and gentians, may be completely protected against their ravages by occasionally sprinkling the ashes on which the pots stand with the powdered material. Or, if the frames are infested with them, a thorough drenching with a strong, hot solution after the plants are cleared out will destroy every vestige of them. I have also tried it with excellent results in rockwork.

It would, of course, be difficult to enumerate all its possibilities, but I should say that for the protection of valuable plants under glass it would be invaluable, and would be a great saving when one takes into consideration the time involved in hunting for the pests, or even in trapping them in various kinds of feeding materials.—A. D. RICHARDSON.

MISTLETOE ON APPLE.

SIR,—I think perhaps this photograph of an old apple tree covered with mistletoe may be of interest to your readers. It was taken just before Christmas last, and although it is difficult to distinguish the berries, they are unusually abundant. The mistletoe was started on the tree about fifteen years ago, and has now, as you will see, practically covered it. The tree is on an asphalted road leading to the stables, and although there is constantly a disturbing element, a mistle thrush built her nest in the tree and brought up a family of five during the late summer, and apparently she and her family are now fancying they have a right to partake of the berries.—J. W. BUCKHURST, *Biddenden, Kent*.



AN OLD APPLE TREE DRAPED WITH MISTLETOE.

DIGGING AND TRENCHING.

SIR,—In his admirable article on "Winter Work and Planting," Mr. Beckett advocates very strongly the bringing up of the under soil in trenching ground. This is no doubt sound advice where the soil is equally good with the top spit. I am afraid, however, that some reading the article and knowing Mr. Beckett's ability as a grower may not take this into consideration. Cases can be instanced where trenching made it almost impossible to grow anything for a year owing to the poverty and clayey nature of the subsoil. Unless the bottom has been double dug and well broken up for some years, it is much better to leave it below. But by all means break it up, and add to it any opening material possible, thus increasing the root run and also allowing superfluous moisture to pass readily into the drains.—J. H.

SYMPHYANDRA PENDULA.

SIR,—Being a devout admirer of the late Reginald Farrer both as a writer and an authority on rock gardens, I read with interest his fascinating eulogium on Symphyandra pendula, and on visiting his garden at Craven was pleased with its appearance growing on the cliff, so I resolved to grow it. I procured seed and raised a large number of plants, some of which I gave to friends. The plants did not flower till the third year and I must confess to having been sadly disenchanted with the result. There was a profusion of blooms which lasted only a few days, and were far from thrilling in colour. One of my friends who has a lovely rock garden at Bridge-of-Earn, makes the same report and threatens to throw it out altogether. I intend to give it another chance, and have planted it high up on a wall and will await the result with interest. Need I say how much I enjoy the numbers of THE GARDEN.—J. PATERSON.

MEDICINAL HERBS.

SIR,—I hear from so many sources that there is really a market in England for medicinal herbs. As it is, all our native healing plants are bought from France and other Continental countries. Take camomile as one example. It is now sold wholesale in London at £6 the hundredweight. I am told that there are several wholesale dealers in London who would be willing to buy plants grown and dried

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Britain. I have this morning received a letter from a friend who constantly uses camomile and who until recently procured it from friends in Brazil, where, as on the Continent, every garden has a patch of this plant. My friend writes: "Cannot you get someone to write up this subject? It is so maddening to know how ignorant everyone is about medicinal herbs, and what might be done if only the right people would take it up." Again, violet leaves are excellent as poultices for all bad bruises, sores and ulcers. Many years ago I was told when visiting in the North of Ireland what a wonderful help such poultices are in cancer cases. Since then I have frequently heard the same in France, and quite recently in England I have heard of cases where violet leaves gave relief when all else failed. Some doctors, if not all, acknowledge their efficacy and order their application. Yet for those who require them and do not possess a garden, it is a difficult thing to procure a regular supply. Just now I am very anxious to find out where I can obtain fresh violet leaves, 2½ oz. of which are required every day. If violet plants were grown in health gardens, one could always be sure of getting a fresh supply of leaves.

Before the war France obtained most of her medical plants from Germany, with which the Fatherland was well supplied, as it was with all other necessities during its forty years' preparation for the Great War! I happened to be staying in a large country house in the North of Germany at the end of July, 1914, and during the first fortnight of the war had somewhat unique opportunities of seeing *how* prepared Germany was for the war in many ways. One was in the growing, drying and packing of medicinal herbs, in which the children in every country school were instructed. A plot allotted to the purpose belonged to the school. The plants were collected, dried and carefully packed by the children and then sent to a local centre, which forwarded them to the headquarters of the trade (a Government concern, of course), from whence they were exported to other countries, chief among them being France. I was told by one of the chief instigators of a like scheme which is now carried on in France that even after the outbreak of war medicinal herbs still poured into France from Germany, as she then did not grow sufficient for her needs. Now it is otherwise, and every French Department has a branch of the society which aims at making the cultivation of medicinal herbs a national industry and seeks to instruct the people to that end by means of botanical excursions, demonstrations and publications. — VICTORIA SLADE.

THE MANURE PROBLEM

THE limited supplies of farmyard manure have had the effect of bringing into prominence the necessity for employing other means to augment or maintain the fertility of the soil. Efficient manuring to-day involves much more than periodical applications of farmyard manure; it is an exact science, requiring much skill and intelligent concentration in order to get the best out of the soil.

THE FUNCTIONS OF MANURES.

It is necessary here to mention that one particular manure, or a mixture of manures, cannot suit every soil, and seasonable influences play their part largely.

It simplifies matters when studying manures to divide them into two classes:

1. Substances that benefit the soil and also the plant.
2. Substances which usually only benefit the plant.

In the first class are farmyard manure, shoddy, vegetable refuse and lime.

In the second it is necessary to include most of the artificial manures.

On some soils it is possible to keep up their fertility by the judicious use of the substances in the first class. But on no soil it it possible to do this over a prolonged period with substances in class two.

It is as well to point out here that, generally speaking, efficient manuring—improving poor soil and crops and maintaining the fertility of a good soil—consists of applications of substances in Class 1, supplemented by applications of artificial manures. If every cultivator of the soil would only grasp these first principles, there would not be so many rigid condemnations of artificial manures.

THE FOUR GROUPS OF ARTIFICIAL MANURES.

Many substances have been introduced during recent years as artificial manures, but, fortunately, they can be placed into four groups according to their effects upon plants and on the soil.

1. NITROGENOUS MANURES. — The function of all nitrogenous manures is the same—to encourage plant growth. In some cases it is possible to stimulate growth to such an extent that attacks of insect pests can be defeated by the plants. In this respect nitrogenous manures are particularly valuable in a late, cold spring, when the growth of plants is practically at a standstill and at the mercy of many pests. Leaf producing crops, such as cabbages, are peculiarly responsive to an application of these manures in spring, and many gardeners realise the effect of a late application of nitrate of soda for promoting a deep green colour to the leaves, making them more tender and crisp, and, incidentally, many exhibitors owe their success to late applications of nitrogenous manures.

The chief representatives in this group are nitrate of soda, sulphate of ammonia and nitrate of lime. They are all quick acting and should only be used when the plant is capable of utilising them and then always in small quantities. Large quantities produce a deep green colour in plants and to the inexperienced this effect may appear good, but it exposes the plants to attacks of fungoid diseases, and, in the case of potatoes especially, the crop suffers considerably by large applications.

2. POTASSIC MANURES.—The effect of applications of these substances — although perhaps not so striking as in the case of nitrogenous manures—are valuable chiefly for the vigour they give to the plant. They tend to produce hardiness in the plant, thus protecting it largely from attacks of disease, and are specially useful to all sugar and starch producing plants, such as potatoes, carrots, beet and pod-producing crops. On light, stony and "thin" soils they are indispensable for good results, and greatly lengthen the growing period, especially in the case of potatoes, where a light soil causes the tops to end their growth prematurely, long before the growing season is spent. The chief manures represented in this group are sulphate of potash, muriate of potash and kainit.

3. PHOSPHATIC MANURES.—Some of the effects of phosphatic manures on the plant are directly opposite to those of potassic manures—for instance, they are invaluable on heavy clay soils and in wet and cold conditions for hastening maturity and promoting early growth. They should be used cautiously on light, dry soils, as maturity may be adversely hastened and the yield depressed. Phosphatic manures are, at the same time, necessary on some light soils, and their use is imperative when potatoes are grown; they should, however, be used in conjunction with potash and farmyard manure. In districts where the rainfall is heavy, phosphatic manures are largely used with extraordinary success, which is accounted for by the rapid expansion of the root system of plants. Applications of phosphates also increase the food value and quality of many crops.

The popular manures supplying phosphates are superphosphate, basic slag, guanos, mineral phosphate, and bones in various forms.

4. COMPLETE FERTILISERS OR MIXED MANURES.—These usually consist of some of the artificial manures already mentioned, mixed in various proportions to suit the needs of crops and soils in varying conditions.

The above groups represent only artificial manures, which, as stated previously, usually only benefit the plant and not the soil, and it is therefore necessary to consider the organic and other substances which benefit both.

Farmyard manure must take pride of place here, and if green manuring and shoddy are included it is doubtful if there is any other substance capable of adding materially to the physical properties of the soil as well as feeding the plants. There are several other organic substances used as manure, but considering the small quantities applied to the soil, they cannot be said to affect the physical properties to any measurable extent.

THE USE OF LIME.—The falling off in the use of lime is difficult to explain, since most gardeners and cultivators of the soil know its value. It is absolutely necessary for correcting acidity and sourness in soils and maintaining its fertility. There are many forms of lime, such as quicklime, limestone and chalk, hydrate of lime and lime ashes. The most suitable form to use depends on many factors, which will be considered later. H. C. ELSDON.

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THE GARDEN

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THE AMATEUR FLOWER SHOW

PERIODICALLY the Royal Horticultural Society is criticised for not catering more for amateur exhibits at their shows, and in the past there has been a certain amount of justice in this criticism. It is true that such well known exhibitors as Sir George Holford, Baron Schröder and the Hon. Vicary Gibbs have always been to the forefront, but they garden on a large scale and are specialists in their various subjects. The ordinary amateur who gardens in his spare time has had little chance of exhibiting at Vincent Square except in the case of new and rare plants.

This year the Royal Horticultural Society is, for the first time, holding a flower show at Vincent Square solely for amateurs—on Tuesday, June 30th, and Wednesday, July 1st. The schedule is divided into forty-two classes, and a little examination will show that the schedule has been made out mostly for the small garden. Of the forty-two classes only eleven are open to all amateurs; of the remaining thirty-one, twenty-four are open to amateurs whose garden wage bill does not amount to more than £4 a week, while the other seven are only open to amateurs who employ no permanent gardener. This skilful arrangement of classes does away with any fear on the part of the exhibitor that he may be swamped by exhibits from large gardens whose owners specialise in some particular branch of horticulture.

The various classes are divided into roses, delphiniums, sweet peas, gladioli, shrubs in flower, herbaceous plants, plants grown under glass, hardy annuals grown in the open, orchids, carnations grown under glass, hardy pinks, foliage plants in pots grown under glass, ferns in pots grown under glass, violas or pansies, antirrhinums, pans of any one genus of hardy plants, gloxinias, begonias, large-flowered mimulus, fuchsias, native British plants, succulents, group of flowering and foliage plants, best new plant introduced into this country since 1914.

This list is extensive enough to suit every type of amateur gardener, and it is to be hoped that they will take advantage of it and exhibit in numbers. One of the troubles about amateur exhibits has always been the fear that such a high standard has been set by the trade that no amateur exhibit can compare in quality and in freshness on the day of exhibition. This is not the case, although, only naturally, the trade are accustomed to grow plants specially for exhibition. There are, however, several tips which may help prospective exhibitors and THE GARDEN will publish shortly an article on the preparation of flowers for exhibition and, nearer to the time, another article on the packing and carriage of flowers for exhibition purposes, both of which we hope will be of use to our readers who may wish to take part in the show.

It is to be hoped that exhibits will be staged in such quantities that this Amateur Flower Show will become an annual event, for good as we are as a nation at gardening there is always room for improvement, and the class of garden for which this show is being held is the most numerous, and so the most important, in the country.

I mentioned a week or two ago how seedsmen used constant selection in order to keep a plant from deteriorating in constitution or in order to improve its quality. In this way they help the amateur. In the same way the R.H.S., by holding this exhibition, are helping the amateur by showing them how a little healthy competition among themselves helps to keep up the standard of gardening. However good the quality of seed or plant may be, careless cultivation will ruin its chance of being a perfect plant, and gardeners, whether amateur or professional, are often inclined to set too low a standard in their garden. As a nation we are noted for the quality of our goods, and nothing except the best should be aimed at even in a hobby like gardening. Country horticultural shows have for long scheduled classes only open to amateurs, and this has always been good for horticulture. Now that the R.H.S., the premier horticultural society of the world, is holding a flower show solely for amateurs, it rests with the amateur to show what he can do.

Schedules may be obtained from the office of the R.H.S., Vincent Square, S.W., and entries, which must be made on the entry form enclosed with the schedule, must be received not later than June 2nd.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

RE-CONDITIONING THE ROCK GARDEN, by W. Irving.

POTATOES FOR ALL PURPOSES, by Norman Lambert.

HONEYSUCKLES, by Edwin Beckett.

MANURES—II, by H. C. Elsdon.

REPORT OF THE ROYAL HORTICULTURAL SOCIETY'S FORTNIGHTLY MEETING.

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FRAGRANCE IN THE GARDEN

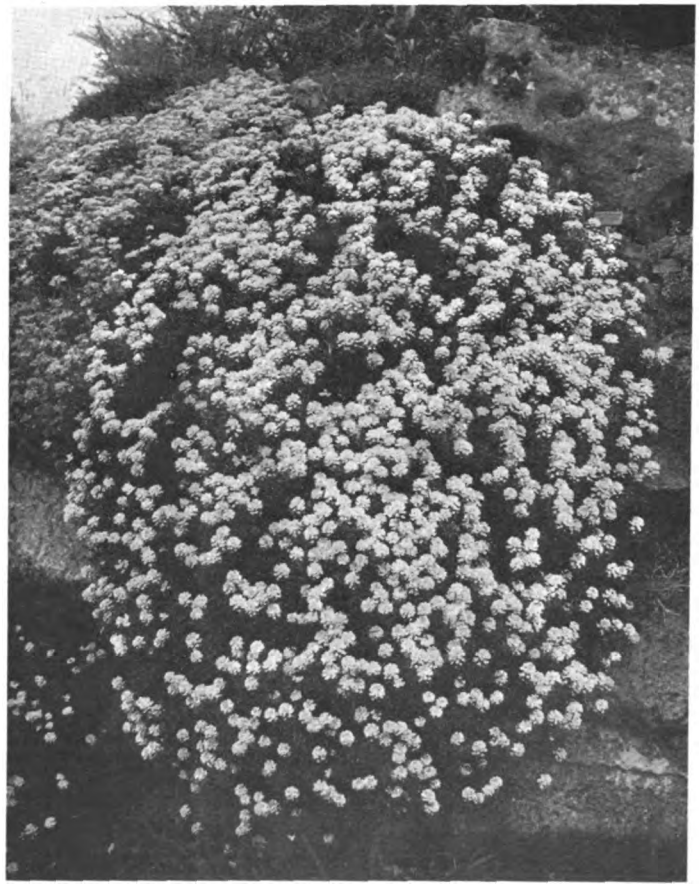
FRAGRANT FLOWERS ARE AGAIN BECOMING SO POPULAR THAT THIS ARTICLE ON SWEET SMELLING ANNUALS AND BIENNIALS SHOULD BE OF GREAT ASSISTANCE TO OUR READERS.

ANNUALS are very much like the Cinderellas of the flower world and, in common with their prototype, often surprise us by blossoming out into the Fairy Princess. Many striking qualities are caged within those hard shrivelled cases that we know as seeds, and the first sprouting green leaves give but little indication of the wealth of colour and store of fragrance that are the ultimate end of their development. But the grand truth is that it is all there and we shall find that for bold patches here and there in the borders, filling entire beds, or for the more humble rôle of carpeting, the fragrant annual is well to the fore.

In reading through a seed list alphabetically, the first name we shall probably encounter will be Abronia umbellata, a little used but valuable half-hardy annual with rosy purple flowers, that gives a fine effect when used as an edging or is equally effective when displayed in a basket. Its relative, arenaria, is a perennial, but may be flowered from seed the first year by sowing early under glass. In this the flowers are yellow and, in their perfume, closely resemble honey. Sweet alyssum amply justifies its name, and for carpeting in all sorts of positions is without an equal where a light-coloured floriferous and fragrant plant is desired. This is of the perfectly hardy class and may be sown outdoors in April where it is to bloom. It is seldom necessary to sow a second time, for self-sown seedlings are so abundant that it is easy to pick up and transplant as many as one wants.

In our estimation of the common cornflower, do not overlook its scent, for this is a very real quality, as may easily be proved by gathering a bunch and smelling the flowers. Not powerful, perhaps, but distinctive and refreshing. Candytuft provides a good range of colours in purple, rose, flesh pink and white, and all of these are highly fragrant. Considerable variation is found in the heights of the different varieties of this, a fact that—coupled with the colour range—makes it possible to use them in many different parts of the garden. The varieties that produce long spiral heads, instead of the flat spreading ones, last infinitely longer and preference should be given to these. Requiring to be started in heat and planted out later, when the weather has become warm, Datura Cornucopia is deliciously fragrant and produces large and exceedingly handsome deep purplish flowers. These smell as powerfully as any lily and present a most unusual effect when seen in full flower in a protected corner. It must be remembered that these daturas are really tender plants and are unsuitable for planting in exposed spots where they have to battle against strong winds, the result of which will be failure to flower. Another variety that is well worth a trial is Datura meteloides, which reaches a height of 3ft. and bears large white fragrant flowers that are tinged with violet.

Erysimum Perofskianum is a delightful wallflower-like annual, just over a foot tall, that, in addition to providing great splashes of brilliant orange, scatters its delicate fragrance all round the spot where it is sown. This is perfectly hardy and one of the few annuals that look at home when sown in the rock garden. One cannot go wrong in sowing the wonderful night-scented stock, Matthiola bicornis, for this has one of the greatest of all evening perfumes that any garden can boast. Some of the most up-to-date seed lists include our old friends, the stocks, under matthiola too: so that it will be convenient to mention them here. Here, indeed, is a rich store of beauty and fragrance, and one can never have too many of these, especially if they are doubles; although, from the point of view of perfume, the singles are quite good. One scarcely needs to point out the value of the stock as a bedding plant, but we may suggest that they never look better than where used in bold masses, either of one colour or in mixture, the most artistic result always resulting from separating the colours. In addition to the summer-flowering kinds, do not omit the splendid Brompton strain, which is so useful for spring and early summer flowering, before the ten-week varieties begin blooming. Mignonette is in place everywhere and falls into line with the alyssum as a splendid carpeting plant. The roots are of the shallow order, so that we may safely employ it as an underplanting between roses, etc., wherever a beautiful and fragrant plant is desired. Its neutral colour is an especially useful characteristic, for there is no risk of clashing and it will "go" with literally everything. Where this favourite annual does not prove a success and the growth is of a sickly yellow hue, it is usually an indication that the soil is lacking in lime and a generous application of this will result in free growth and flowering.



SWEET-SCENTED CANDYTUFT IN THE ROCK GARDEN.

Mirabilis jalapa, the Marvel of Peru, is a handsome tuberous-rooted perennial that may be successfully treated as a half-hardy annual and gives splendid plants about 2½ft. in height, with funnel-shaped flowers in late summer. These flowers do not open until evening and are borne in clusters of from three to six, varying in colour from red to white and yellow. Each flower is enclosed within a calyx consisting of five divisions, which continues to grow after the flower itself has faded, thereby adding to the attraction of the plant. Treated like the dahlia, the plants may be kept for several years. Mention must be made of the nicotianas, the finest and most fragrant of which is unquestionably the favourite white tobacco, so familiar to all lovers of fragrant flowers. Here again we want to emphasise the value of massing in quantity, for no plant gains more by the company of its fellows than this. It is true that one does face rather a large patch of closed drooping flowers during the daytime, but ample compensation awaits us for this each evening when the hundreds of starry flowers open in their glory and fill the air with their own particular odour. This is a generous plant, with odour enough and to share, and as one passes along the street or sits in a neighbouring garden, we may often revel in the delight that has been provided by a brother flower lover. Nearby or used as an edging to our tobaccos, we may use another

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night-blooming annual, Nycterina capensis, which reaches a height of about 1ft. and bears a profusion of lovely white flowers that give forth the perfume of vanilla. These evening flowers are an education in the art of wide advertisement, for not only do they proclaim to the various night-flying insects that the store of nectar is open, by disseminating a penetrating odour, but they are invariably white or light-coloured. Another example of this publicity is to hand in the unique Schizopetalon Walkerii. This is a half-hardy annual that cannot be transplanted, for the roots are so delicate that it is impossible to move it successfully. This means that we must sow rather late, in finely raked soil and a sunny position. Take care that you do not mistake the small seedlings for weeds, for they are very grass-like in appearance during the early stages. The only care that will be necessary is to thin out the plants to 6ins. apart, so that they can branch freely. The flowers, as has been said, are unique, resembling nothing so much as exquisite squares of finely cut lace. During the day one would pass by the plant again and again without observing it; but wait until six o'clock in the evening and a great surprise would be experienced. With the regularity of a clock (more reliable, indeed, than many clocks we know) those greenish petals unroll and reveal the white squares described above. Did one fail to see them, the plant cannot escape notice, for the powerful almond perfume hangs heavily upon the air and one is bound to search for the origin of so much sweetness. The flowers are in small sprays that continue to expand, one after another, while the branching habit also ensures a long flowering season.

FOR A STORE OF BEAUTY AND FRAGRANCE IN THE GARDEN, STOCKS ARE UNRIVALLED.

Three more prominent "sweets" still remain to be dealt with—the sweet pea, the sweet sultan and the sweet scabious. The latter, it is true, is not strictly an annual, but responds so readily to treatment in this way that we may include it in our consideration of such plants. Unrivalled for cutting and freedom of flowering, it is one of the finest of all our fragrant flowers and a border in which there are some generous plantings of these may well "hold its head high" where successful beauty is concerned. With these, we always like to purchase our seed in separate colours rather than as a mixture, for this enables all poor or muddy colours to be eliminated and far better effects from the border and from the home decorator's point of view are secured. Sweet peas need no praise or description, but, from the point of view of our present purpose, another problem does arise—the sweetness. Lists are far too prone to emphasise the number of "fours," the depth of the colour, or the fact that the blooms "do not scorch," leaving out of account the prime reason for the flower's existence. Here and there one does find tucked away an allusion to "very fragrant" or "the real sweet pea perfume," and it is still possible to amass, say, a good dozen first-class varieties that are worth their weight in gold, compared with their sisters which rely solely upon exterior beauty for their charms. Each and every sweet sultan that can be found may be relied upon as a good border annual, with the single proviso that they should be sown in autumn in preference to the spring. It is thus that the plants attain those noble bush-like proportions and provide such a lavish display of their elegant flowers, which are good both in the border and when cut. The delicacy of their colours, long stiff stems and soft yet pleasing perfume, leave nothing to be desired. H. W. CANNING-WRIGHT.

PLANTS AND PEOPLE

IN the first number of THE GARDEN for 1925, Colonel Enever Todd in "A Wanderer's Note Book," turns aside from his pleasant discourse upon plants and places to ask, a little querulously, "Who and when was Bauhin?" One cannot help suspecting that Colonel Enever Todd knows quite well who Bauhin was (or rather, who they were), and is only putting his tongue in his cheek to add emphasis to a diatribe against the practice of bestowing names of people upon plants, for, although the brothers Jean and Gaspard Bauhin lived some three hundred years ago, they were of such renown in their time, and since, that it seems too soon for their memory to be claimed by "the iniquity of oblivion that blindly scattereth her poppy." They will always be known to the historian of botany by the 'Pinax Theatri Botanici" and the "Historia Plantarum nova et absolutissima," though Bauhini, Bauhinia and Bauhinorum may become empty names to the gardener.

Most people will sympathise, and many will agree, with Colonel Todd's objections, for there are many plant names of personal attribution that are no more than meaningless labels to most of those who use them. Yet some of the shortcomings of these names are not inherent in the method of naming, but are due to clumsy or partial latinisation.

It was easy for the botanists to give their names to plants in the days when they wrote gossiping letters to one another in Latin and signed their names in Latin form, when Charles de l'Escluse naturally called himself Clusius and his tulip, as naturally, took the name *Clusiana*. But we are unaccustomed nowadays to see our surnames in Latin dress and hardly recognise Mr. Strangeways in "Stranvæsia." Yet, since we have accepted Latin as the international language of botany it is surely better to conform to the old fashion of latinisation rather than to pass into currency names like "Haworthia," which are pronounceable only by ourselves.

Various shifts have been used to overcome the difficulty of latinisation. Rosa Ecae contains the initials of Mrs. Aitchison, the wife of Colonel Aitchison, who discovered the rose during his exploration of the Kashgar valley. The late Mr. Reginald Farrer created "Reginella," from his christian name (a happier coinage was "Bardolphii," which describes the countenance of a cypripedium especially distinguished for its whelks and bubukles), but neither of these are official and perhaps they have already passed out of use.

Colonel Todd strongly advocates that plants should be named after the localities in which they are found, but here again latinisation is a difficulty and we meet names like "Haylodgensis," which is inexcusable, even for a hybrid. Place names and descriptive names have the very great recommendation that they tell us at first glance something about the plant, but it seems a little ungenerous to grudge a botanist or plant collector the enduring memorial of a plant named officially in his honour. If we are really interested in a plant, most of us will be willing to take the little trouble required to find out how it got its name, and often the plant gains for us an added interest by its association with some part of the history of botany or gardening.

Linnæus laid it down that if personal names were given to plants they should be those of botanists or of patrons of botany, and he honoured many of his fellow workers in this

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way. To the brothers Bauhin he gave Alsine Bauhinorum, because it was a plant with grassy leaves that grew on the mountains, and thus commemorated Gaspard's interest in grasses and Jean's work among the alpine flora. Perhaps the reason for the ascription is only one of the many legends that grew up round Linnæus' nomenclature, though it is quite consistent with his, sometimes whimsical, genius for giving appropriate names. The precepts of Linnæus have been faithfully followed in the making of official names, and it is perhaps worth while to draw attention to a discrimination that is expressed in the form of those specific names which are of personal origin, since it does not seem to be quite generally recognised. A genitive ending indicates that the plant was discovered or first described by the person whose name it bears, while an adjectival ending means that it was named in honour of someone, usually of someone who was concerned with its introduction or its classification. Thus the specific name of Iris Forrestii shows that it was discovered by Forrest, who is still adding to the long list of new plants that he has collected in China, while I. Hoogiana takes an adjectival ending because it was named, by Mr. Dykes, "after the two brothers Hoog, who now constitute the firm of Van Tubergen in Haarlem and it was due to their enterprise that the iris was imported from Southern Turkestan where it was discovered by their collector, Graeber." The genitive ending is usually retained when the plant is named in honour of a lady, as are Rosa Ecae, Berberis Wilsonæ and Ceratostigma Willmottiæ, for the distinction would be lost in the adjectival form, but, unfortunately the genitive is occasionally used without this justification.

F. A. HAMPTON.

GENTIANA PYRENAICA

BY CLARENCE ELLIOTT.

IT is curious that such a beautiful plant as Gentiana pyrenaica should have remained for so many years practically unknown and ungrown in English gardens. I remember it as one of the special treasures at Backhouse's nursery about twenty-five years ago, and it was there looked upon as a great rarity and extremely difficult to grow. Since those days I have never met the plant either in gardens, conversation or books. Farrer describes it in his "English Rock Garden," but I never heard him speak of it, and I never saw it in his garden, nor, I think, is it mentioned in any of his other writings. I do not think Farrer ever grew Gentiana pyrenaica, and I very much doubt if he ever saw it, which makes his description of it in his "English Rock Garden" all the more wonderful, for it is extraordinarily true and vivid.

For years, then, I had been wanting this elusive, lovely plant, and there seemed nothing for it but to go and get it for myself—which, after all, is far the pleasantest way of acquiring an alpine. In the first week of last July, therefore, I set out for the Pyrenees, making for the eastern end of the range, where alone the plant is to be found, and in particular for the little fortified mountain town of Mont Louis, which had been so well described in THE GARDEN (June 21, 1924, page 434). July is late for the Alps—for flower hunting, that is—unless you go very high: and Mont Louis is anything but high. And phew! it was hot. I liked the dull little town, compact within its fortifications, and unspoiled by modern improvement; and I liked the friendly, rather ramshackle hotel, with its casual, go-as-you-please way of seeming to run itself—and producing perfectly wonderful meals. The one really important thing about life at Mont Louis—apart from plant hunting—was how to avoid being taken for joy-rides by the hospitable *patron* of the hotel. It was a powerful, ugly, khaki brute of a car, and the *patron*, with a large staff of brothers, cousins and friends, seemed to spend all of every day tuning it up in the garage.

A little earlier—only a week or two—Mont Louis must be a Paradise of flowers. Now, in July, it was full haytime. Gentians, acaulis and verna were in ripe seed, and only a tattered narcissus remained here and there. I shall go again another year, in early or mid June. Yet I do not regret having visited Mont Louis in July. I found my Gentiana pyrenaica in good enough flower to see what a first-class beauty it is, and I found it, moreover, in seed. I think the best and briefest description I can give of the plant is to say that in habit and in flower it is like a dwarf compact edition of Gentiana sino-ornata, with flowers of an intensely brilliant violet purple. And it appears to revel in the same conditions as to soil and moisture. G. sino-ornata, I find, requires a soft rich soil of peat and leaf-mould, and likes a good deal of moisture. Gentiana pyrenaica I found growing in rather moist, heathy places, sometimes quite boggy, and the wetter the ground the more luxuriant the mats of the plant seemed to grow. The last afternoon I collected at Mont Louis, I came upon a wonderful swampy meadow, where Gentiana pyrenaica and G. verna grew in solid turves a foot across, among the coarse grasses, every plant thickly crowded with seed heads. It must have been a magnificent discord of pure blue and violet when in flower. So swampy was it that I squelched about with the water over the tops of my boots. But in other places G. pyrenaica was growing in far less boggy ground, though always the soil was of that rather peaty, spongy nature which never becomes very dry, and into which the rather soft, delicate roots delight to quest.

There seems to me to be a distinct relationship between Gentiana pyrenaica and the family of the ornata gentians—G. sino-ornata, G. Farreri, G. Veitchianum, etc. In habit and soft root system, they are very near, as also in soil requirements. In the ten-pointed corolla—five major and five minor intermediate points—there is a strong family likeness. But the most marked resemblance of all is in the carrying of the seeds. G. pyrenaica pushes up a slender column above the fading corolla, which widens at the summit into a flattened purse-like ovary. When ripe the ovary splits and opens flat and wide, with the seeds loosely attached to the two inner surfaces and fully exposed. A similar arrangement is common to all the ornata gentians.

Farrer states that G. pyrenaica is indifferent as to lime in the soil. He may be right, but I think probably he is not. Anyway, it is a local plant, and at Mont Louis it occurs solely on non-calcareous formation.

I spent a very jolly week wandering over the great moorland floor of the Mont Louis valley, exploring the pine forests about Font Romeau. One Sunday I pushed up into a rocky gorge in the mountains facing the town. This gorge, known as the "Asses Room," was a wild desolation of gigantic tumbled rocks and breast-high jungles of Rhododendron ferrugineum, Botanically, it was dreadfully dull. The only plant in which I could take a flicker of interest was a large-growing, white-flowered mossy saxifrage, possibly a form of S. geranioides. Entomologically it was rich—in gigantic ants and bloody-minded horse flies, which, however, found me more interesting than I them.

A very striking plant in the hayfields at Mont Louis was Geranium pratensis, for the form which is dominant there was unlike any pratensis I have ever seen. Instead of the typical violet-coloured flowers, they ranged through the loveliest lavender blue, clear and luminous, some a little paler than others, and one or two almost white.

Although true alpines were practically over—and it *is* disappointing to arrive in a rich alpine district a fortnight too late—my solitary wanderings were cheered wherever I went (except in the "Asses' Room") by the frequent little flares of Gentiana pyrenaica, blazing brilliant violet in the grass. It was for that that I had come, and I saw enough of it to astonish me that any alpine could be so much more brilliantly beautiful than the brilliant traditions that still lingered around its almost forgotten name. I found it, moreover, a good plant to collect and to establish. If I found it even more lovely than tradition had led me to expect, I also found it far less difficult to handle than tradition had led me to fear. After a short sharp dash to the Central Pyrenees to get ramondia, I hurried home with my gentians to give them every chance of survival. And Gentiana pyrenaica has rewarded my consideration. True, I have only possessed it a bare five months, but those months are the very ones in a collected plant's life which are the most dangerous. All my plants have not only survived, but have prospered amazingly.

First there is an immense turf of the plant, still with its native grasses, nearly a foot across, and looking as fit as can be;

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also a dozen or so rather smaller tufts, also still growing with their native companions and likewise prospering. These live in pots and a large pan. For soil I made a confection, rich but light, of peat, leaf-soil and silver sand. Further, we potted up an immense number of smaller plants, teased out clean from all grasses. This plant, which had always had rather a murky reputation as a difficult brute to manage, has astonished me with the readiness with which it has taken to domestic life.

Having at last found a sure way of growing Gentiana sino-ornata, and applied the very marked relationship between it and G. pyrenaica, I begin to think that pyrenaica may respond to sino-ornata treatment, and prove a perfectly tractable garden plant, after all.

EARLY-FLOWERING RHODODENDRONS

BY R. L. HARROW (*Edinburgh Botanic Garden*)

AMONG the large number of rhododendrons now in cultivation several may be depended on to produce their flowers regularly from January to March; indeed, in a mild season, as the present one, they will commence to bloom in December.

The earliest to open its flowers here is R. parvifolium, a member of the Lapponicum series and a native of north-eastern Asia. The plant is not a large grower, generally about 2ft. or slightly more in height, with wiry stems and a rather scanty number of leaves at their apex. The flowers are of a rosy purple colour, freely produced in dense heads at the apex of their shoots forming a pretty bit of colour about the end of the year or beginning of January. Here it grows freely with but little attention, beyond an occasional top-dressing of leaf-soil and loam during winter. In sequence of flower this is followed by R. mucronulatum, a native of Korea belonging to the Dauricum series. This is almost a deciduous species, but it usually retains a few of its leaves at the tips of the branches among the flowers, which are generally single, from buds at the extremities of the shoots. The individual blooms are of a rosy purple colour, about an inch or slightly more in diameter; the calyx is slightly lobed with long ciliate hairs along the margins. The plants here are about 4ft. in height, though it is said to attain greater height, and are decidedly attractive when in full bloom. It will succeed in more sun than is required for evergreen rhododendrons, and thrives with the usual treatment given to the genus. Some years ago the Yokohama Nursery Company listed in their catalogue a very similar plant under the name of Azalea acuminata. It is probably a geographical form of R. mucronulatum, but is, for garden purposes, easily distinguished by its later flowering season—generally commencing in February, when the last named is finishing its flowering period. The flowers are also lighter in colour and the lobes of the calyx seem entirely absent. It forms larger bushes and the habit is more dense. In a favourable season this form is very showy with its mass of pinky coloured blooms. A note on the subject of early flowering rhododendrons would be incomplete without R. dauricum, upon which odd flowers may be found during most months of the year, but is usually in full bloom from the end of January onwards. Its flowers seem to be capable of withstanding more frost than is the case with most species, and are best seen with a glimpse of sun shining through the bed. Perhaps the most showy subject here at present is a hedge of R. præcox more than 50yds. long, and a mass of bloom. Grown in this way it shows itself to advantage and forms a popular sight in the garden.

LARGE WHITE FLOWERS OF RHODODENDRON MOUPINENSE FROM SZECHUAN.

RHODODENDRON PARVIFOLIUM, ONE OF THE EARLIEST TO FLOWER.

R. moupinense from the mountains of western Szechuan is a very hardy plant which will stand a considerable amount of wind if planted fairly closely together in a clump. In positions such as this it will take years to gain a height of 18ins., but in more sheltered positions and shaded places it is sometimes seen up to 30ins. or more. Here a clump grown in a raised part of the rock garden, a couple of yards in diameter, forms a dense canopy of foliage, and flowers well during February. The large white flowers are, unfortunately, too often caught by frosts, but a week of mild weather at the time of flowering will well repay its inclusion in any collection. Wilson states that in its native habitat it is epiphytic on oaks and other broad-leaved trees, but in cultivation requires no very special treatment of this kind.

R. scabrifolium, a native of Yunnan, a white-flowered species, is at present just showing flower out of doors. It is of rather tender constitution, and is apt to be cut back by severe frosts, though for the last two winters it has escaped any serious injury. The habit of this plant is rather loose and is best planted rather closely together. The scabrifolium series is a small one and includes R. spinuliferum, a species with narrow tubular red flowers too tender for out of door gardening in Edinburgh but which is flowering under glass now.

Among the earliest of the triflorum series is R. Keiskei. In Japan, its native habitat, this is said to grow from 4ft. to 5ft. high, but is not usually seen so tall in Britain. The flowers are of a pleasing yellow colour, and produced in abundance. It forms a neat bush-like habit and, like many Japanese plants, stands exposure better than many, and should be welcomed by all who appreciate an early display of colour in their gardens when flowers are scarce.

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RIDEAU HALL GARDENS

BY GEORGE SIMPSON.

OUR READERS MAY BE INTERESTED TO SEE HOW SUCCESSFULLY ROCK GARDENING IS CARRIED ON AT GOVERNMENT HOUSE, OTTAWA, WHERE CONDITIONS COULD HARDLY BE CALLED PROPITIOUS.

THE gardens at Rideau Hall, the official residence of the Governor-General at Ottawa, make an appeal to the interest of readers from the fact that they are for the time being in charge of a distinguished British amateur gardener, Her Excellency the Lady Byng of Vimy. Combining, with the graces of social leadership and a talent for letters, a love of nature and a keen interest in gardening, Her Excellency is singularly well equipped not only to dispense the hospitalities of the Government House but also to direct the work of those who have to do with the embellishment of the grounds. To this task she has brought a practical knowledge and enthusiasm altogether natural to the Englishwoman but comparatively rare among Canadian women with similar responsibilities and preoccupations.

LOOKING ACROSS THE LAWN AT THE REAR OF GOVERNMENT HOUSE.

A BORDER OF HARDY PERENNIALS WITH A BACKGROUND OF ELMS.

Previously to her coming it was only to a few that Her Excellency was known as an amateur gardener, and these awaited her arrival with confidence and hope. They had read (THE GARDEN, 1921, page 314) or heard of what she had done for the rehabilitation of the estate of Thorpe Hall, and they were prepared to pay homage to her as an exponent of all that is desirable in the gentle art of gardening. The expectations of these ardent spirits, horticulturally speaking, have been more than realised. Her Excellency has not only busied herself with the gardens at Rideau Hall but has done much to stimulate interest in gardening throughout the Dominion of Canada, and has proved a generous and practical friend to organised amateur horticulture.

In this she is but following tradition. As far back as the middle of last century Mrs. Thomas McKay, the then mistress of the Hall, was a patron of the local horticultural society and an exhibitor at the shows held at that time on Barrack Hill, now the site of the Parliament Buildings. With the transfer of the estate, comprising some 87 acres, to the Dominion Government at the time of the confederation of the Canadian provinces, the gardens at Rideau Hall came under the direction of successive governors, and each left his impress upon them—or probably it would be more correct to say that the wife of the Governor-General was the directing spirit.

Among the predecessors of Her Excellency, none took greater interest in the beautification of Rideau Hall grounds than Lady Grey. The Duke and Duchess of Devonshire also devoted much attention to the gardens and a hedge enclosed garden begun by Her Grace the Duchess is now in course of development. A tangible memorial of the interest taken by the Devonshires in matters horticultural is the Devonshire Cup given to the Ottawa Horticultural Society for annual competition.

Before the coming of Lady Byng there were in Canada—outside of British Columbia—few examples of rock gardening. Mr. Morgan of Montreal had demonstrated the adaptability of this sort of garden to the climatic conditions of eastern Canada by an elaborate example at Senneville on the St. Lawrence, but the cult had made little progress. One of Her Excellency's first undertakings was the planning and construction of a rock garden on a somewhat ambitious scale. She found ready to her hand, if not the ideal site, at least a fairly good one—on the slope where contact is made between the more naturalistic and dressed parts of the grounds. The background was there too, provided by a screen of established maples and elms, sufficiently near to protect and yet sufficiently remote not to menace the well-being of the plants that were to be set in the pockets amid the stones. But the measure of her good fortune was heaped to overflowing by finding strewn about the glades of Rockcliffe—adjoining Government House grounds—an abundance of limestone, weather-worn, fissured and fractured by the elements. Her Excellency's carefully prepared plan was put into the competent hands of Mr. Harris, the head-gardener, who had received his training in Scotland; and the result is seen—or, perhaps, only suggested, because it is not fully disclosed—in the accompanying pictures. The illustrations do only partial justice to the original, in that the photographs were taken in the heat of midsummer after the early bloom had passed. Some initial planting had been done to furnish the garden until the permanent plants had attained size and these temporary denizens, since removed, had exceeded their allotted limits and attained a stature not to be tolerated in the rock garden.

The planting is extensive and varied and its survival after two Canadian winters proves its climatic suitability. The fact is that many plants accustomed to the frosts and snows of high altitudes endure the dry, cold winter conditions

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of eastern Canada better than the humid atmosphere of more temperate regions. The list of plants includes such hardy things as æthionema, Anemones Pulsatilla and sylvestris, aubrietia, campanulas in variety (exceptionally well suited to Canadian conditions) dianthi in variety, the gentians, Alyssum saxatile, dwarf irises, both rhizomatous and bulbous, dwarf phloxes in variety, primula species, polyanthus and primroses, saxifrages (encrusted and mossy), the lesser spring bulbs in variety, narcissi, Iberis sempervirens, arabis, Saponaria occymoides, sedums, semper vivums, a few suitably placed specimens of the dwarf coniteræ, and many others.

This garden is a novelty to many visitors to Government House and excites much interest and admiration.

The general garden scheme includes formal bedding, perennial borders, plantings of annual flowers, vine-covered pergolas and retreats, woodland walks and beautiful vistas. Scattered about the grounds are some century-old specimens of the native elm.

THE EXTENSIVE ROCK GARDEN AT RIDEAU HALL WHICH HAS AN IDEAL SITUATION IN THE MIDST OF NATURAL SURROUNDINGS. It is populated by a varied collection of rock plants which appear to thrive exceedingly well in the cold conditions of Eastern Canada.

CORNUS MAS

THE Dogwoods as a whole are an interesting group comprising many hardy ornamental shrubs with handsome foliage. Despite also their brilliant autumn colouring and their attractive flowers and fruits they are little grown in the majority of gardens. Why that should be is difficult to guess, as they are very desirable either for growing as isolated specimens or for planting in shrubberies. They are of easy cultivation, while a large number of them are propagated from seed without difficulty. One species, Cornus Mas, the so-called Cornelian Cherry, especially, appears to have fallen in public estimation judging from its rare occurrence, and several of our readers have been complaining of its rarity. Years ago this was one of the most popular of all early-flowering shrubs, and through no fault of its own this popularity seems to have disappeared. Our illustration shows a typical specimen in full flower with its tiny yellow blossom covering the leafless twigs. The fruit is also attractive, being a fiery red, but owing to the change of climate it does not appear to fruit so freely as in the past. Practically every reference to this plant prior to 1880 speaks of its fruiting qualities, but possibly in those days the weather was more to its liking. The flavour of the fruit is fresh and acid, and it is said that in former times it was used in the place of fresh green almonds in dessert.

THE CORNELIAN CHERRY, CORNUS MAS.

The Cornel tree is a native of Europe, and the name of Cornus Mas was given to it by Linnæus. It has long been in cultivation in England, and apparently used to be planted around old religious buildings. It is very easy to cultivate successfully, and thrives best in good loam with a certain amount of moisture. Like many of these early-flowering trees and shrubs with small flowers, it should be planted where the afternoon sun strikes it against a dark background which shows up the flowers to best advantage. In a suitable situation it attains a height of 15ft. to 20ft. There were a number of varieties other than the type in cultivation in the middle of last century, but many of them appear to have died out.

It is a great pity that such a valuable decorative shrub for this dull time of year should have disappeared so much from ken. There is a fine specimen at Kew which is always much admired, but it is far from common in private gardens. It is to be hoped that this plant will regain its popularity, for it is worthy of it.

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THE CONSTRUCTION of a LAWN TENNIS COURT

BY REGINALD BEALE.

THIS ARTICLE, FULL OF TIMELY HINTS ON THE MAKING OF A GRASS COURT, SHOULD PROVE OF INTEREST AND VALUE TO OUR MANY READERS WHO ARE PLAYERS OF ONE OF THE MOST POPULAR OF GAMES.

THE measurements of a grass court are 78ft. by 36ft., but in order to obtain adequate room for fast play an area of 120ft. by 60ft. is required. This allows a run back of 21ft., with 12ft. to spare on the side lines. If possible, arrange the court to run north and south in order to avoid as much as possible playing into the rising and setting sun. North-north-west and south-south-east is the orientation of the championship courts at the New Wimbledon ground. Should the ground fall away in the length or width of the court it will be necessary to level the site and the most economical method to employ is to take the soil from the high end and use it to raise the lower end. The fall of the ground can easily be ascertained by means of a series of pegs, a straight edge and spirit level. If a peg is placed in the highest point protruding say, 6ins. from the surface, in order to clear obstructions and the one at the lower point is 6ft. 6ins. above the existing level, it is obvious that the ground will have to be excavated at the high end to a depth of 3ft., and made up 3ft. at the lower end. Should the ground fall both ways it will be necessary to take cross levels. When the levels are got out, it is a simple matter for any gardener to work to them. When a serious alteration has to be made in the level, both the length and width of the court should be extended by 6ft. or more, as one cannot run freely and with confidence, and at the same time watch the ball, if there is any chance of falling headlong down a steep bank.

When everything is set out, remove the existing turf and lay it aside, if it is good enough to replace, but if it is not, stack it in a convenient place to rot, so that it can be used for making compost. Then remove the top spit soil and place it aside. This is most important, particularly if the surface soil is thin and the sub-soil poor gravel, clay or other inferior soil. Should the surface soil be lost or badly mixed with undesirable sub-soil, it will be more difficult and costly to get satisfactory results. The next operation is to level out the site with the sub-soil by wheeling it from the high end and dumping it on the lower. This must be done with the utmost care, and the subsoil spread evenly in thin layers, and well trodden into position, otherwise it will slowly but surely settle and spoil the level of the playing surface.

The next step is to examine the soil and subsoil in order to determine what drainage, if any, is necessary. Should the soil be of a porous nature it will not be necessary to make any provision for drainage, but should it be of a retentive or clayey nature, or should the site be obviously wet, the problem must be given very careful thought. It is difficult to lay down any hard and fast rules as circumstances differ so widely, but it should not be difficult for the man on the spot to determine the amount of drainage necessary and adapt a system likely to prove satisfactory. When a court has been levelled in the way described, the excavated end is always the wettest on account of the surface water running from the hill and oozing out of the banks. It is therefore wise in all cases to cut two trenches at the foot of the banks, making them 12ins. deep at the corner where they meet and 18ins. to 24ins. at the ends, where they discharge. Then, if necessary, cut a trench diagonally across the court, allowing the same fall as given above. Lay 3in. pipes in all the drains and fill up with clean cinders. This should effectively deal with the wet, cut-out end, but if it does not, additional spurs can be added.

When coping with heavy, impervious clays it is imperative in addition to the drains to spread a layer of clean ashes from 3ins. to 6ins. deep over the whole site. Level sites should be drained on the herringbone principle, with a 4in. drain down the centre and 3in. spurs, 12ft., 15ft. or 20ft. apart, according to circumstances; but if the site is likely to be wet it will be better in the long run to excavate it 12ins. deep, put in a moderate system of, say, a 4in. main drain down the centre, and 3in. spurs 20ft. to 30ft. apart and cover with a 3in. to 6in. layer of ashes.

Provision for at least 6ins. of top spit soil must be made, and as all classes of soil, sand, gravels, chalk, loam or clay will be met with, and in most cases the soil, no matter what it happens to be, will have to be taken as it is found, it is again only too evident that I must write in general terms. The ideal soil is a good fibrous loam that will carry a fine, strong, hard-wearing turf and roll down to a firm, true surface that will not break up or crumble under foot. If the soil does not answer to this description and suitable soil can be obtained locally and a first-class court is desired, sufficient soil should be purchased to form a layer over the entire site from 2ins. to 6ins. deep. Should it be decided to finish off in part or whole with such soil, allowance must be made for discarding a similar quantity of the natural soil, otherwise the surface of the court will be raised proportionately by the amount used.

In most cases, however, the cost of the soil and transport will effectively bar its use, so I will now endeavour to explain how the natural soil should be worked up. First of all, test it for lime and if there is a deficiency, make it good by adding half a ton to a full-sized court; then spread the soil evenly over the surface or dig it over as the case may be. Manure should now be spread using ten loads of well rotted dung or fresh peat moss manure. If this cannot be obtained, substitute with 2 cwts. of Carter's Complete Grass Fertiliser. If the soil is of a retentive or clayey nature it should be broken up well and thoroughly mixed with fine cinders, such as will pass through a ¼in. square mesh sieve, using 3 cubic yds. or more to every 100 sq. yds. of surface. The object of using cinders is to open up heavy or clay soils and so improve the surface drainage, warm the soil and allow the roots of the grass to travel through it freely. In fact it is a waste of money to put in a cinder foundation unless the surface soil is sufficiently porous to allow the rain to go straight through it and not remain on the surface, as it will if it is impervious or nearly so to water. Every load used in the construction of the court should be spread evenly and well trodden into position. Breeze or cinders, if used, should be thoroughly mixed with the soil, right the way through, and all manure incorporated with the surface soil, and none of it buried deeper than 3ins.

If the work has been done properly the surface should be quite level, with the same depth and quality of soil throughout. The actual levelling of the surface depends upon the skill of the men employed. Some can make a good job with very few pegs, but in order to avoid error, it is just as well to drive in a series, say, 6ft. apart, and true the soil up to them by means of a straight edge. This operation must naturally be done with care, and all inequalities corrected by adding or removing soil and repeatedly raking, treading, and rolling until the surface is quite firm and true and when walked upon hardly shows a mark.

The lawn is now ready for turfing or sowing as the case may be. If expense is no object and time a consideration, turf is undoubtedly the best, provided that only a good quality is used; the lawn can be played upon with certainty the following season. It is not easy to find good turf and unless one goes to the expense of purchasing Cumberland and other Marsh turf and even this, unfortunately, is full of weeds, or has the luck to find good stuff locally, there is no alternative but to use meadow turf and work it up.

Should, however, expense stand in the way or the lawn not be required for use the first year, seed should be used. The reason why it takes longer to produce a lawn from seed than it does from turf is fairly obvious. Turf is naturally old and must be fairly fibrous with a strong root mat to stand lifting, and as it is the matted root growth rather than the leaves that have to stand the wear and tear of the game, it will surely resist better than turf produced from seed, unless the latter is given time in which to develop and form the strong matted root growth desired. It does not matter a scrap which is used so far as weeds are concerned, as it is just as economically impossible to buy turf free from weeds as it is to destroy the weed seeds in the soil. If seeds are used, sow them at the rate of from 1 oz. to 2 oz. to the square yard, cover by raking the surface in two directions and finish off with a light roller.

To get the best results from turf it should be cut 12ins. by 12ins. by 2ins., and, if possible, trimmed in a gauge box to

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a thickness of 1½ins. If this is done it can be laid on a firm, true surface with dead accuracy without packing; when it is cut 3ft. by 12ins. by 1½ins. and rolled, it will require very careful packing, if anything approaching a level finish is to be obtained. The turf should be laid diagonally across the lawn, after slightly disturbing the surface to a depth not exceeding a quarter of an inch. Place the turf carefully into position, pack if necessary with sifted soil and gently beat it down with a turf mallet.

The conditioning and upkeep of lawns has been explained in another article and with greater detail, and as I have come to the end of my space I must leave it at that.

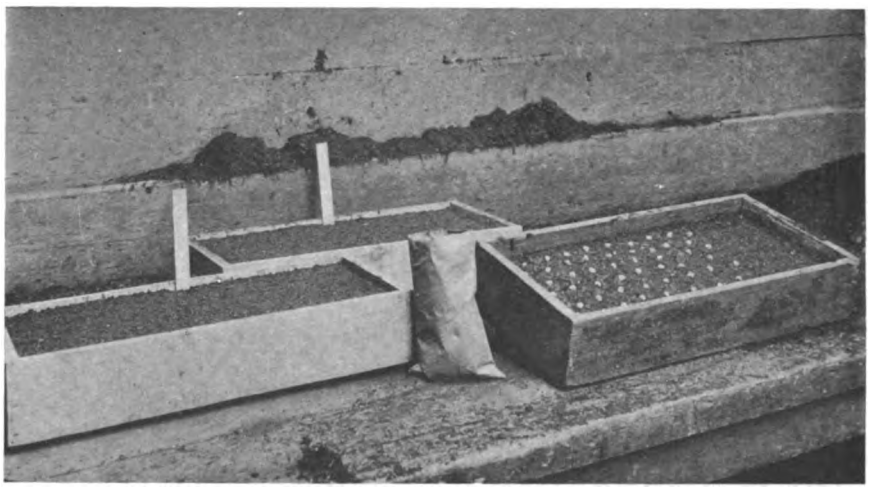
SUCCESS WITH GARDEN PEAS

BY EDWIN BECKETT.

THERE are two classes of growers of peas with whom I disagree; the first, the person who will persist in growing those old and, as I contend, worthless sorts in comparison with modern varieties of value, and the other, the man who says he cannot afford the space to grow many peas, as they are not a profitable crop to grow.

Now let us consider the first proposition, *i.e.*, the nearly worthless sorts. I wrote on this point, in a book on vegetable growing, nearly twenty years ago, and then proclaimed against the use of such a variety as the "Gladstone" pea, uncertain in its habits, comparatively poor in its quality, and yet people would grow it, and neglect such a fine type as the "Duke of Albany." Why was it? I really believe it was because, when it was successful, it was a pretty stiff little green pod, whose appearance was certainly better than its edible qualities. Let me once again entreat those who are sticking to old, out-of-date sorts, to leave them out of the seed order and employ the modern, better quality varieties; I will warrant they do not return to the older sorts.

Next, the man who has not the space. Here again I fancy is one who will not move with the times, for I have often seen a row of peas in a cottage garden, properly grown, and of a good modern sort, that was more than worth the strip of ground they were occupying, and as "man cannot live by bread alone," so one likes to adapt that Biblical quotation to vegetable food, and have a change of diet from the inevitable potato, cabbage, onion, etc., and what more delicious change can one wish for than a good dish of fine flavoured modern garden peas. There is also an important economic fact that must not be overlooked, for peas, requiring proper cultural methods applied to their growing, are a crop that greatly benefits the ground, owing to the soil preparation that should be accorded them.



THE RAISING OF PEAS IN BOXES.
These should be plunged under a south wall after sowing.

AN EXCELLENT CROP OF WELL FILLED PODS.
Note how the staking is carried out.

Having got these two points dealt with, we will consider shortly what may be the best ways to raise fine peas. Firstly it can be recorded, that, where facilities exist, it is possible to have good culinary peas from May until the frosts cut the vines, say at the end of October. The very early supplies can only be raised under glass, in such a place as a cool house, such as that devoted to the growing of trained fruit trees, and it may also be carried out in pits and frames, raising dwarf, medium or tall varieties of suitable character, according to the receptacle. They may be raised in either pots, boxes or in the borders of the house. For the very early crops sow in a compost of good fibrous loam, well decayed leaf soil, and some well spent manure such as comes from an exhausted mushroom bed, adding to each bushel of this mixture a 6in. potful of bone meal. Use pots of 8in. to 10in. diameter, well provided with drainage, and do not more than half fill with the soil mixture, as moulding up with this should take place after the plants have passed the top of the pots. Select the seed carefully so as to use only the best, and sow ten to a pot, covering them with about ½in. of the finest of the compost, watering well in. Place them in a cold house or frame to germinate, for fire heat is not required, and the plants once through should have all the light and air possible. Stake when about 3ins. tall, and remove half the plants, as five will be sufficient to a pot. Once sufficient flower has opened—do not strain the vine too much—you can pinch out the point and remove all side growths. Feed liberally with liquid manure after the pods have set.

Continue the same process with another batch sown in January, which can later be stood out of doors to grow in a sheltered spot facing southwards.

So much for the crops that mainly rely on glass for early production. Now for a consideration of those growing outside. First comes the ground preparation, an operation which I consider to be the main item for the production of really good peas with heavy cropping. The prime essential is deep trenching, 3ft. down; place a good layer of farmyard manure at the bottom, and again in the middle of the trenched portion. For the first and second early crops I

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always advocate sowing under glass, as against the old method of autumn sowing. Sow in boxes, placing the seed about 2ins. apart, and using a compost like that previously noted. A sowing in January, two in February, two in March, and another in April, will keep up a fine succession, and at the time of the last named, the first sowing in the open can be made, and by continuing these about every ten days to a fortnight, in sufficient quantity, the supply can be kept up to the late autumn. A word as to sowing is necessary. Too frequently is this done too thickly, only twice the number of seeds should be sown as there are plants required; these should be thinned out when young, leaving the plants from 6ins. to 10ins. apart according to the height of the final growth. Sow in double rows, and allow plenty of space between any pair of such rows, for the space between can be well utilised for other crops. Plants raised in boxes should be planted out on the same lines, and all should be staked when the plants are quite young. Staking is most necessary and is a very important point in growing peas. Good brushy hazel sticks are the ideal, and the spaces at the base should be filled in with the twigs clipped from the tops. The height of the sticks must, of course, be according to the height of the variety grown, and should be even a little above the average height of the mature plant.

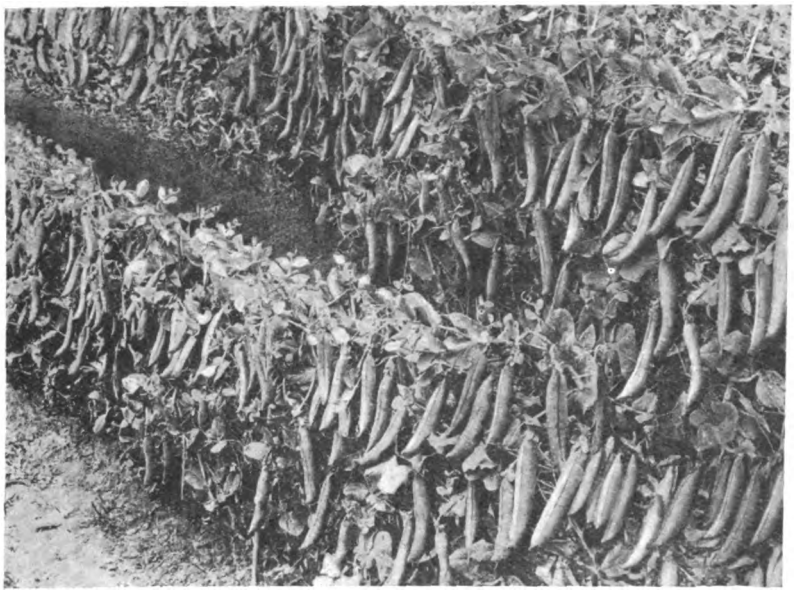
Slugs may be troublesome, and therefore an encircling guard of sharp cinder ash should be added, if available, to protect the young plants from the marauders. Plenty of water, and feeding with manure water when the pods have set is beneficial, and for a change from the latter an occasional sprinkling of a reliable fertiliser is most helpful, while during hot, dry spells, syringing in the evening is desirable.

For late crops, it is well to prepare trenches, say 2ft. deep, breaking up the bottom of these well with a fork, and laying on top about 9ins. of cow manure, filling up with a good loam, leaf and horse manure compost. This method, on poor light soils, when employed for mid-season crops, will be a profitable move, especially as the trench permits proper and successful watering when necessary.

I want for a moment again to refer to the great advisability of trenching properly in ground preparation for peas. One has only to see two rows of peas, the one on trenched and manured ground, and the other on ground merely dug over, to realise the real worth of the proper methods, for the crops are not to be compared. The whole secret is the depth to which the roots of peas will dive after their food and moisture, so do not hesitate, but break right down into the soil for this crop.

Early and late crops will be benefited if the points are pinched out when sufficient pods are set.

[In connection with the above article and the procuring of up-to-date varieties, we have pleasure in bringing to the notice of our readers who may not have been fortunate enough to obtain the catalogue of Messrs. James Carter and Co., a striking novelty in the vegetable world which has just been raised by them. This is their new giant-podded dwarf pea, well named "Giant Stride," of which an illustration is here reproduced. It is claimed that this is the largest podded dwarf pea in the world, and it maintains all the good qualities of its predecessors. The haulm is strong and produces an abundant crop of its large pods which are generally perfectly filled with large, luscious peas of good flavour. Its ideal height of only 2ft. and its robust constitution should go far to make it one of the best peas in the market for everyday use. It may be mentioned that Messrs. Carters are now despatching seeds, and it is probable that the demand may exceed the supply. The price asked is a reasonable one and is within the reach of all.—ED.]



ONE OF THIS YEAR'S NOVELTIES IN GARDEN PEAS, "GIANT STRIDE."
It bears abundant crops of large and well-filled pods, and is an ideal height.

BOOKS ABOUT PLANTS—IV

TECHNICAL AND SEMI-TECHNICAL.

I HAVE been asked by the Editor to write this article in the hope that it may assist those who are keen book lovers and collectors in the formation of a library of botanical books be they so inclined. The studies of botany and horticulture are closely associated, and, indeed, it is difficult to draw a definite line of demarcation between where the one ends and the other begins. Botany is generally defined as the scientific study of plant life, involving nowadays many branches devoted to different aspects of the plant. For example, we have plant geography, plant physiology, ecology, fossil botany and so on, and it will be readily seen how difficult it becomes to advise one what books to purchase which will serve as an elementary course of instruction and at the same time prove valuable in after years as works of reference. A library, when all is said and done, is a collection of books on subjects on which the owner is keen. They may be picked up at random or they may be obtained in series with a definite purpose in view. To the horticulturist, then, who commences to take a passing interest in botanical study, the first book I would recommend is a general elementary text book. Of this type of book there are several which can be obtained—some written at length in the form of a story; others, again, bristling with nothing but hard facts. Then comes the choice of the individual. Each must choose according to his type of mind. To those who appreciate good solid fact without unnecessary padding, there is no better book on elementary botany than Louson's Text Book. It is packed with useful information from beginning to end. The fundamentals of the subject are clearly and concisely stated. The book abounds in definitions and the subject is very skilfully treated, the reader being presented with a true conception of the wide confines of his subject. A new edition was published about two years ago, including a chapter on genetics—dealing with evolution, variation and kindred questions. To those whose minds can grasp essentials better when woven into the form of a pleasing story, I recommend Bower's "Botany of the Living Plant," published by the Macmillan Co. There is probably no botanist more qualified to write on the subject than Professor Bower of Glasgow, and he does so in a most charming and delightful style. This volume may be said to be a simplified edition brought up to date of Strasburger's "Text Book of Botany," which has come to be looked upon as the standard work on elementary botany.

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After a simple botany has been mastered, the reader will probably have made his choice as to the branch of the subject on which he would like further information. It may be that the physiological side appeals to him, or perhaps the ecological. Be it the former, then a simple physiology on the lines of that published in the Cambridge Biological Series would suit his purpose admirably; or, if the latter, then he would derive extreme satisfaction from Tansley's "Elements of Plant Ecology." But just here a word of warning will not come amiss. If the student be ecologically inclined, then I think it is wise that he should become thoroughly familiar with his native plants before he commences to study them in relation to their environment. Bentham and Hooker's "Flora of Great Britain" when used in conjunction with the volume of illustrations will be found to be two of the most valuable books in a botanist's collection. They are published by Lovell Reeve and Co. Once a working knowledge of the native flora has been acquired, then ecology can be turned to in earnest. If it be the owner's intention to take up the study of systematic botany, one of the most useful books will be Warming's "Systematic Botany," published by Sonnenschien. This volume deals chiefly with the systematic classification of the flowering plants, although a discussion on the systematic position of the lower groups is taken up. A useful review of the lower groups treated from an evolutionary standpoint will be found in "The Origin of a Land Flora," by Professor F. O. Bower, published by Macmillan and Co. A most interesting conception of how the first land plants—in fact, if the truth were known, the beginnings of life—originated is presented in its pages, and the reader gets that feeling so well expressed by Wordsworth in these few lines:

> Hence in a season of calm weather,
> How inland far we be.
> Our souls catch sight of that immortal sea
> Which brought us hither.

Another volume written by the same author was published only two years ago on the Ferns (Filicales) by the Cambridge University Press. A second and companion volume to this is likely to be published shortly. A really delightful and readable book on the history of the fern, bringing in all the facts which have had a definite bearing on their evolution, leading us to form a true perspective of the group in the light of form and function as outwardly expressed by these plants at the present day.

Another branch of the subject which during recent years is becoming increasingly more important is that of plant disease. It is strange that works dealing with this aspect of botanical science are remarkably few. It is true there are a number of German works on the subject, but these are only of service from a reference point of view. They deal chiefly with the classification of the fungi. A book which all gardeners will find useful is a "Text Book of Plant Disease," by George Massee, published by Duckworth and Co. It is somewhat out of date, and inaccurate in parts in the light of recent knowledge and research, but nevertheless is worth having on a library shelf. A little book which will be found of service is that on the "Diseases of Field and Garden Crops," by Worthington E. Smith, published by Macmillan and Co. It is long out of date, but the beginner will find it of interest. A more recent volume on "Plant Disease," by Bennet, also published by Macmillan, appeared last year. It is somewhat limited in its scope, but presents all the main facts in a condensed form. Technical books on the fungi fall to be mentioned, one on the "British Rust Fungi," by Grove. This is a standard work and now by no means complete. The second is "The Fungi," by Dame Helen Gwynne Vaughan, published by Cambridge University Press. This deals with the group from a more or less cytological point of view and is certainly not recommended for the beginner.

It may not seem within my province when dealing with botanical works to mention two volumes which deal with soils and their treatment. But since the soil is inevitably bound up with plant growth, it is wise, I think, to have these two on the bookshelf. The first is "The Soil," by Sir A. D. Hall, published by John Murray; while the second is "Fertilisers and Manures," by the same author and publisher. These give a clear presentation of the constituents and properties of the soil, of the main classes of manures and their action in improving the fertility of the soil and on the crop. The why and the wherefore of manuring is given in the most simple way, so that the two volumes are understandable by the most uninitiated. They are really invaluable volumes.

For those who imagine that a scientific botany is beyond their powers of comprehension, I would like to mention two volumes which I feel sure they would find interesting as well as instructive. These are, one, a recently published volume called the "Wonder Book of Plant Life," by Fabre (the famous French naturalist) (T. Fisher Unwin), the other being "The Life of the Plant," by A. C. Timeriazeff (Longmans and Co.). The salient and fundamental facts are presented in a way that does not give the reader indigestion but which rather tends to whet his appetite. In this more popular connection I would like to bring to the notice of readers two small volumes on plants in the Home University Library Series, published by Messrs. Williams and Norgate. One is "Plant Life," by Professor Bretland Farmer, while the other is the "Evolution of Plants," by Dr. D. H. Scott. These are excellent little books. Another small book which is worth purchasing is "Plant Geography," by Boulger, published by Dent and Sons at about 1s. 6d., I think. It presents the main facts of plant distribution and the underlying reasons in a nutshell.

A recent volume published by Messrs. Sidgwick and Jackson on "The Biology of Flowering Plants," by Dr. Macgregor Skene, is one which every botanist should find of intense interest, especially those who are physiologically inclined. Anyone interested in plants will find the book instructive yet pleasing. The life of the flowering plant is presented in a most fascinating manner.

One thing more. There are many monographs on different aspects of the subject which are published from time to time by Longmans and Co., such as "The Soil in Relation to Plant growth," by Dr. Russell. These contain an account of the latest work in that particular branch, and in many cases are worth acquiring. There are other volumes, such as Schimper's "Plant Geography," Pfeffer's "Physiology of Plants," Goebel's "Organography," De Bary's "Comparative Anatomy," Coulter and Chamberlain's "Morphology," which will be of the greatest service as reference books. These, however, can be consulted at any botanical library.

There are many more which ought to be mentioned, but I must confine myself to the limits of a short article, otherwise I will have the Editor saying a few words about botanists and their books.

G. C. T.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

there is always information available from a staff of expert contributors and consultants; *and there is no charge for this*. It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

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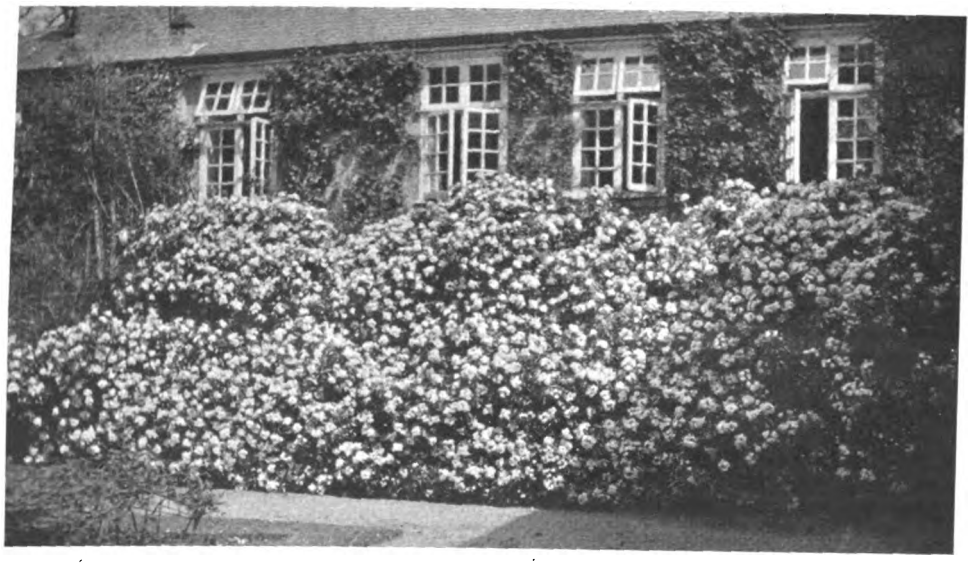
NOTES FROM CONTRIBUTORS

ONIONS: SOME OLD PROBLEMS.

IT is generally agreed that the season of 1924, with its abundant rainfall, was one of the worst on record for the ripening of onions out of doors, but it was also a year when the ravage of the onion fly was least experienced. Although, however, we were not troubled so much with this old pest as in a dry time, we were faced with an equally bad enemy in smut disease. As a grower of some years standing, I have come to the conclusion that it matters little whether plants are autumn raised, January sown in heat, or sown in spring out of doors in the orthodox fashion, there is no certain immunity from attacks of fly. I have seen it asserted that onions sown out of doors in August, allowed to winter there and transplanted in March or April, are "too tough in foliage for the onslaught of the fly." If that were so, we should, I submit, see more autumn sown onions, but unfortunately it is not borne out in actual experience, as although the damage done by the fly is less than among heat raised and spring sown plants, a bed of autumn raised onions is not absolutely free from attack. The opinion of other growers in regard to last season, coincides with mine, *i.e.*, fly was not so troublesome though smut disease presented itself. As is known, the latter is an insidious disease which forms on the outer skin of the bulb, a sooty grey substance which soon spreads. It would almost appear that while in a wet season the fly is less rampant, requiring warm and genial weather for its work of destruction, it is favourable to smut disease, which in effect is mildew. The fly and smut have dogged the onion grower always, and, as far as my experience is concerned, there is no reliable remedy. Certain methods employed do in a measure render the access of the fly to a bed more difficult. One—perhaps the oldest of all—is the free use of soot during May and June when the pest is busy depositing its eggs between the leaves, shortly after which, maggots appear and the plant is eaten away. Soot is best dusted at night or early morning while the dew is present. Another alleged preventive is paraffin, poured in vessels, and distributed over the bed. It is said that the fumes are so obnoxious to the fly that attack is impossible. The strength of the liquid, however wanes when exposed to the air for long, and it needs to be renewed. I have tried this, but cannot say that it was efficacious. Of the two, soot has proved the best standby. Once onion plants are seen to be affected, and the first symptoms are drooping of leaves and further examination usually reveals the small maggots in the young bulb, there is no half measure to be employed. Nothing less than rooting out plants and soil and burning both, is worth considering, and most onion growers are in accord as to the wisdom of this. Here is a question which was put to me the other day: "Is it possible for the larva of the onion fly to lie dormant in the soil from one year to another and then awaken to activity?" In common parlance, "Where do flies go to in the winter?" Can someone elucidate the mystery please?—CLAREMONT.

CHOISYA TERNATA.

READERS of THE GARDEN may be interested in the accompanying illustration of Choisya ternata which is growing here. It is not, as it perhaps appears to be, against the house, but on a brick wall some distance away. It is in a very sheltered corner and has always done well. The bushes became so large and straggly and encroached on the path so much we have now had to cut it very drastically.—MAUD STEVENSON, *Stoke Poges.*



EXCEEDINGLY FINE BUSHES OF CHOISYA TERNATA AT STOKE POGES.

NOTES ON BORDER PLANTS.

ACHILLEA MILLEFOLIUM ROSEUM.—This yarrow has been long in cultivation, and therefore we may look upon it as an old-fashioned plant. Its charming colour—a rosy red—and its long flowering period give material for comment, as plants were in flower in August and even at the end of November two fairly large plants had each several clean and good coloured flower-heads borne on stems quite a suitable length for cutting. The plants, too, were well furnished with fine dark green fern-like foliage.

CHEIRANTHUS ALLIONII.—The plants raised from seed sown in July of the previous year flowered splendidly in the month of May last year. After the blooms faded the old spikes were cut away so that the plants would not become exhausted in seed production, and also that further flowering would be encouraged. This object was attained, as, although the plants did not effect such a display as in May, at the end of November this Siberian wallflower upheld a few dainty orange-coloured flowers.

CHRYSANTHEMUMS.—November is certainly well named the month of 'mums. Of course, that definition applies particularly to plants flowering under glass. Yet large numbers of flower-lovers must have been charmed last season with the fine and prolonged displays borne by plants out of doors. On November 16th last, I observed in a villa garden several fine plants upholding good heads of white flowers, while a week later I again noticed some white-flowered plants making a brave show close by the door of a dwelling. Yet here, at the end of November, we had fine healthy plants of a variety called Pembroke bearing many wine-coloured flowers. Not only is this a dark-flowered chrysanthemum, but its foliage is strong, healthy and of a very dark green shade.

SCABIOSA CAUCASICA.—All who delight in soft shades of blue flowers will do well to grow the Caucasican scabious, or blue bonnet. Not only is it an ideal plant from which cut flowers can be obtained over a very long period, but the plant is almost a continuous bloomer, seldom being without flowers. Our plants bloomed quite early last year, then again throughout the summer and autumn, and even in November were bearing fine handsome blooms—some of them 3ins. in diameter. In one up-to-date hardy plant catalogue Scabiosa caucasica is described as "One of the jewels of hardy plants."—DAVID ARMSTRONG, *Midlothian.*

TWO FINE WINTER-FLOWERING HEATHS.

DURING the dull months of the year Erica carnea and E. Darleyensis produce a fine display of bloom, and they ought to be represented in every garden. E. carnea is a native of the Alps of Central Europe, and attains a height of 6ins. to 10ins. The flowers are rosy red, and when seen in a large bed it is very effective. Here at Castleford, Chepstow, it is associated with the hybrid Rhododendron Early Gem, and it is a beautiful combination, especially when the weather is favourable for the latter to open its flowers. Some years the blooms of the rhododendron are ruined with wind and frosts, but the erica always gives a good account of itself. E. Darleyensis is also known as E. mediterranea hybrida, it being a hybrid between mediterranea and carnea. It first appeared in the nursery of Messrs. J. Smith and Sons, Darley Dale, and grows about twice the height of E. carnea. The colour of the flowers is somewhat similar to E. carnea, but in a bed the general effect is quite distinct. Our plants begin to bloom in November, and during February they were a fine sight. A valuable attribute is the length of time these heaths remain in full beauty. Most, if not all, of the heaths should be planted in large masses or beds, and I find the two plants mentioned will succeed in ordinary soil in this district with the addition of very little peat. When the plants are past their best the old flower-stems should be removed, and then further pruning is rarely needed.—T. W. B., *Chepstow.*

PROTECTING CROCUSES FROM BIRDS.

IN many gardens, especially near towns, crocuses suffer badly from the attacks of birds. I have found that a very excellent way of protecting the flowers is to stretch lengths of cotton round about and even over the clumps. The cotton, which may be black or brown, is attached to short sticks, painted green to make them less conspicuous. Birds of all kinds have a perfect horror of any fine threads like cotton and, after one attempt to get at the crocuses, they are not likely to repeat the attack.—S. LEONARD BASTIN.

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AN AMATEUR GARDENERS' SOCIETY

FOLLOWING on my note last week on the Amateur Flower Show to be held by the R.H.S., a little booklet has just been sent to me from the New Barnet Amateur Gardeners' Society dealing with their twenty-seventh season. This small society seems to me to embody a great deal that is of great value to horticulturists both in rural and in suburban communities. It was founded in 1899 and its principles are:

1.—To further the interest of gardening among amateurs in the neighbourhood of New Barnet.
2.—To afford opportunities for the exchange of opinions and experiences of its members.
3.—To bring its members into friendly rivalry on the show benches.
4.—To arrange, during the summer months, visits to places of horticultural interest in the county.
5.—To arrange for the holding of lectures on horticultural topics.

These principles are excellent and very much to the point. In a short history of the Society the secretary mentions that the fortunes of the Society have fluctuated and that "it has, in fact, on more than one occasion been on the verge of collapse, but an appeal to its members to advertise the Society has each time brought about a revival." At the present moment there appear to be over a hundred members, which, although satisfactory, must only include a percentage of the keen amateur gardeners who live around New Barnet. That thirty-nine of these hundred odd members exhibit at the three shows held yearly by the Society shows that the members are not satisfied with paying their subscriptions and leaving the exhibits to others, for this is a very high average.

The first show this year is being held on April 18th, the second on July 4th, the third on September 12th. The schedules are divided into four sections, flowers and plants, fruit, vegetables, ladies' classes, while the actual classes are simple and such that the owner of even the smallest garden can compete. As well as ordinary awards, aggregate prizes are presented every year by Messrs. Cutbush. In addition to the report and schedules the booklet gives a page of hints to new exhibitors, another on the staging of vegetables, a third on some garden friends, as well as a useful table for vegetable growers.

The whole of the cost to the Society last year, including printing, hire of hall, prizes, etc., came to £30 17s., which is not a large sum. The income is raised by a subscription of 5s. per annum from men and 2s. 6d. from ladies. This shows that with skilful encouragement such an amateur gardeners' society can be run successfully at very little cost.

This short résumé of this little booklet proves what can be done in an average suburban community. That this Society has survived twenty-seven years, including the war years of 1914-18 reflects great credit on its organisers and I hope it grows from year to year as it undoubtedly deserves to. This form of society is of the greatest use in helping the ordinary amateur who is often unable to provide more than an occasional day's hired help for his garden. There are numbers of similar societies throughout the country, but every neighbourhood in which there is a nucleus of keen amateurs would be the better for such a society. The rules of this society are simple and the advantages to its members obvious. The number of plants to be shown in each class in the schedule are few and consist of ordinary plants to be found in every garden.

I have spoken before of the fact that whereas the trade keeps up the quality of its goods by constant selection and introduction of new forms, the successful cultivation of the plants rests with the grower. The three shows held by this Society every year no doubt go a long way towards keeping up the standard of cultivation in the neighbourhood of New Barnet by the spirit of friendly rivalry they must instil into the members of the Society. It is this friendly rivalry that is so important in keeping up the standard of cultivation, for, naturally, conditions of soil and climate are approximately the samewith in a small area, and everybody knows that what one can do in skilful cultivation can be accomplished by all.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

PLANTING THE WATER, WATERSIDE AND BOG GARDEN, by George Dillistone.

NOTES FROM FLORAIRE, by H. Correvon.

THE CHARM OF MINIATURE DAFFODILS, by Edward Cahen

PRUNING ROSES, by A. C. Bartlett.

POTS AND POTTING, by W. Lamberton.

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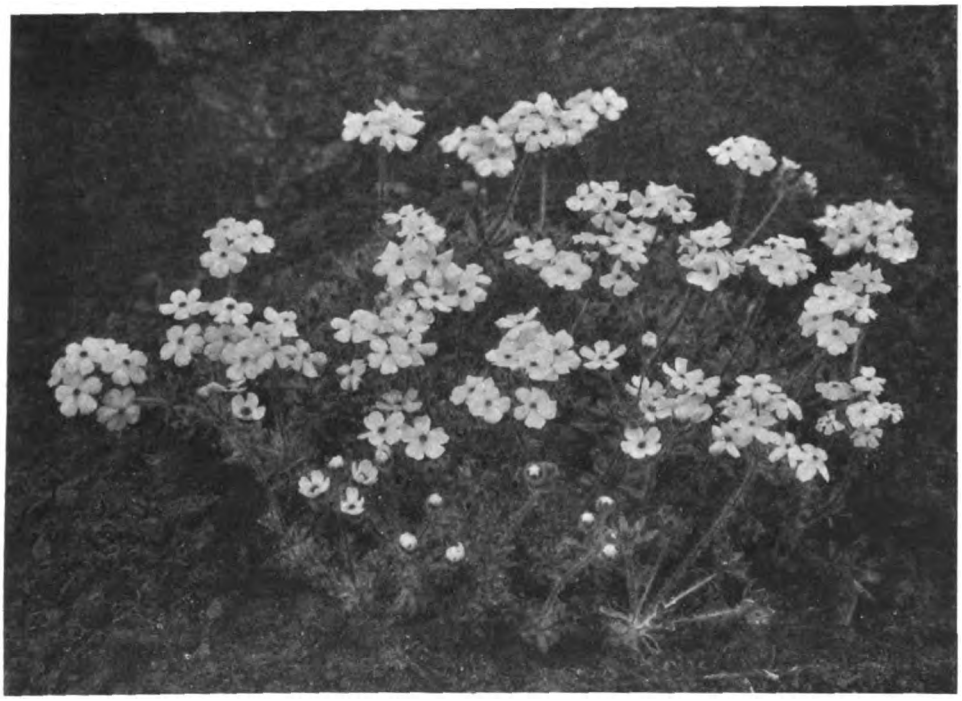
RE-CONDITIONING THE ROCK GARDEN

THE time for this work is during the late autumn, all through the winter when the weather is open and mild, and in the early spring. During these months there is much to be done in the rock garden, one of the most important being the operation of top-dressing all those plants that require it. Many plants, like some of the stem-forming primulas, have a tendency to run up and grow away from the surface of the soil, with the result that they appear straggly and leggy. When top-dressed with suitable soil, fresh roots are emitted higher up the stem, and thus the plants benefit to a great extent by this being performed when necessary. The spreading mossy phloxes, aubrietias, achilleas and other similar carpeting plants should also be attended to. For the purpose of top dressing, a compost of loam, leaf-mould and sharp grit should be used. Chop up the loam as small as possible, and pass through a sieve to separate all coarse lumps, then add the other ingredients and mix well together, and place under cover where it can be kept dry. The mixture should be worked well in between the prostrate stems, and where there is room between the plants the soil should first be stirred up slightly with a hand fork and all weeds cleared off. Care must be taken that the top-dressing is not too heavy, and for plants like the androsaces, more grit must be added in proportion to the soil used. The requirements of various kinds of plants must be borne in mind as the same compost will not do for all. For instance, Gentiana verna will respond to a dressing consisting of a good proportion of old mortar rubbish; Androsace villosa and Asperula arcadiensis prefer granite chippings with a little leaf-soil, while some of the primulas benefit by the addition of well decayed cow manure to the mixture employed.



ANDROSACE VILLOSA, WHICH BENEFITS BY THE ADDITION OF GRANITE CHIPS AND A LITTLE LEAF MOULD.

A DRESSING OF OLD MORTAR RUBBLE GIVES EXCELLENT RESULTS WITH GENTIANA VERNA.

The transplanting or re-planting of such plants that have exhausted the soil in which they are growing should be finished off as early in the spring as possible. The best time for this is in the autumn months, so that it gives the plants time to get established before the cold weather sets in. They are then ready to produce their flowers as soon as the weather permits in early spring. At the same time, if such work could not be carried out in autumn, it may with safety be performed in the early spring. With care and attention to watering during the dry weather, no ill effects should be encountered. All pockets that have got sour or exhausted should be emptied, and refilled with a good compost suitable for the particular plant that is going to occupy it. If the natural soil is at all heavy plenty of drainage in the shape of broken bricks or stones should be placed in the bottom before refilling up with the soil. The stronger, free-growing plants that show signs of exhaustion should be taken up and replanted in a larger pocket in fresh soil, or if they are to go back again in the same position, only a portion should be planted, selecting the stronger and healthier crowns for the purpose. It often happens that a coarse-growing plant is situated near to a choice slow-growing one, and where there is danger of the strong one over-running the other, one of them must be moved to a more suitable position. One must always be on the lookout for this kind of thing in the rock garden.

It is a good time now to do any rebuilding that requires to be done, as with the stones away it is so much easier to replace the worn-out soil with new, and when the plants are put back again they get a good start. It is a good plan to rebuild portions of the rock garden from time to time for this purpose, but where there are large specimens in the way, that it would be dangerous to move, these could be left and built up without disturbance. All plants that have got into a weak condition, or have gone off from various causes, should be removed, fresh soil put into the pockets, and fresh plants from the frames put in their places. All vacant places should be planted up as soon as possible if the weather continues open, but

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plants from pots may be planted at almost any time when necessary, even in the height of summer, if supplied for a time with shade and water.

One of the most important features of a rock garden is correct and legible labelling. This entails a great deal of time where large collections are to be kept correctly named. Labels should be chosen that are not obtrusive in the general effect, but are easily read when close. Several neat and useful labels are now on the market, one of the best being a small one on a stand or leg a few inches long. The material used is glass, coloured green, with black burnt-in letters, either block or script, the former being more distinct and easily read. Others are made of metal with raised letters, which can be kept bright by using emery cloth or sand-paper. Wooden labels, although necessary, are too conspicuous to please one who cares for the appearance of his rock garden. Lists should always be made in fair weather of all plants that want re-labelling, so that labels may be prepared on wet days, or in hard frosty weather, when no work is possible outside.

ONE OF THE CHOICER ALPINE SUBJECTS, OMPHALODES LUCILIÆ, WHICH SHOULD BE CAREFULLY TENDED.

A sharp look out must be kept at all times for slugs and snails, which have their special favourites among alpine plants. Among those specially liable to attack are Omphalodes Luciliæ, Aster alpinus, Campanulas of the smaller kinds like C. Allionii, C. Zoysii and C. Saxifraga, Crepis aurea, and most other plants that have succulent leaves and buds. If neglected, the growing points are liable to be eaten out, with the result that there is no flower the following season. One good method of catching slugs is to put down here and there little patches of bran covered with a piece of slate or glass to keep it dry. This bran forms a great attraction for the slugs and they can be caught in large numbers at night. For special plants it is advisable to examine them periodically when the slugs usually come out to feed. Another method of keeping away slugs is to spray the plants with a solution of alum, which renders the plants distasteful to them. Dead leaves and decayed matter form a good harbour for slugs, so these should not be left on the plant, but cleared away as often as possible, keeping the whole place clean and tidy.

Among other things the bog garden will require overhauling, as many of the stronger-growing plants will have exceeded the space available. Such plants must be taken up and divided, re-planting only a small portion. Where they cannot be taken up the clumps can be reduced in size by chopping off the superfluous parts, or thinning out the crowns. Many bog plants come up freely from self-sown seed, so that it is necessary to weed, and thin out thoroughly, before growth commences in spring. After all the plants have been reduced to their proper proportions the whole surface can receive a good top-dressing of loam and leaf-mould, to which has been added a good proportion of sharp, gritty sand. Those bays or pockets in which peat-loving plants are grown, of course, must be supplied with a mixture of peat, leaf-mould and sand. The wall gardens must also be attended to, as frost has probably loosened many stones, and consequently the roots of some plants will be exposed. Fresh soil should be rammed in to make them all tight, and where there are vacancies these can be filled up with young plants from the nursery. Plant these very firmly, and work the soil well back so that there are no cavities in the rear. When well furnished a wall garden is one of the most attractive parts of the rock garden, with its pendent curtains of bloom in spring, furnished by such plants as Iberis Garrexiana, Dianthus cæsius, D. plumarius and Cerastium tomentosum, and others. Among the many foliage plants are the silvery-leaved Artemisia lanata, A. vallesiaca, Chrysanthemum ancherianum and Erodium chrysanthum, to mention only a few that are valuable for furnishing an old wall. When this is all done we may await the promised display of beautiful sheets of flowers in the near future. W. I.

POTATOES FOR ALL PURPOSES

I HAVE spent the greater part of my life in one of the great potato-growing districts of Yorkshire. The soil in this locality, where potatoes are the chief crop, may roughly be divided into two types: (1) a light loam, and (2) the warp lands. The former class of soil is considered an ideal medium, for in it most varieties can be grown to advantage. The loose nature of the soil enables it to be cultivated at any time, and also, when the tubers are developing, there is no hindrance to their formation. On the warp lands, which consist of alluvial deposit from the rivers, the sodden nature of the soil after a wet period defers ploughing, etc., and it frequently happens that planting is late. Should the summer be dry, however, these warp lands retain the moisture when more porous soils are parched, and consequently potatoes continue growth when others have died down. Certain varieties, such as King Edward, invariably do well on the warp lands.

Much is often written in the gardening Press concerning the advisability or otherwise of planting potatoes directly on the animal manure in the rows. As this is the usual practice in this district, and has been for many generations, its safety can be taken for granted. Perhaps it may interest readers who do not live in a potato-growing district if I explain briefly the method of manuring and planting adopted by the farmers in the Vale of York. Rows are made with the plough, and then carts bring manure from the farm into the field. This is thrown in heaps at intervals along the rows, and workers follow along spreading the manure so that a thin covering is left down each furrow. This is usually allowed to remain for a day or two until the whole field is manured. A dressing of sulphate of ammonia is then scattered broadcast over the rows, and the potatoes are planted, either by hand or by a machine known as a "setter." After the potatoes are planted—*i.e.*, laid on the manure in the rows—they are then earthed up with the plough. This is a preliminary earthing-up, the proper banking up of the rows taking place later. To those critics who assert that planting potatoes directly on animal manure is

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the way to produce disease I ask the question: "If this is a wrong method, why have the farmers, on whose livelihood the success of the potato crop depends, not adopted another course?" I have proved beyond doubt that to plant potatoes directly on animal manure is not to produce disease. When a potato tuber commences growth it must have plenty of manurial elements near its initial roots, hence the placing of animal manure and artificials close to the initial growth.

Quick acting fertilisers, such as sulphate of ammonia, are necessary to ensure rapid growth in May and June. The beneficial use of this can be proved by testing two rows, one in which a dressing of sulphate of ammonia has been given and the other where it has been omitted.

In my own trials, during the past few years. I have endeavoured to find out from experience which varieties are most suitable for garden culture. The amateur who cultivates a plot from which the potato crop finds its way to his own table is chiefly concerned with one or two essential points. As a rule he likes a potato that is styled "a good user," and at the same time he desires a good crop. The size of the tubers is not such an important matter. If they are of medium size they suit his purpose as well as very large tubers would do. Unless he wishes to clean a certain plot of ground (and there is no better way of choking weeds than by growing a potato crop where the variety is of tall habit), a moderately tall or a short haulmed variety is admirable. Some growers adopt the plan of growing celery and potatoes together. A wide space is left between the potato rows and in this the celery trenches are made. The potato rows would thus occupy the ridges of the celery rows. For such a purpose a dwarf-growing variety should be used. I know an old farmer who has grown celery and potatoes in the same field for a number of years to great advantage. The variety of potato that he always uses is Ninety Fold.

It is generally known that there are two classes of potatoes when one is discussing cooking qualities. The floury or mealy type, of which Arran Chief is a well known example, is most popular. Some people, however, like a closer-textured variety, one that is commonly called "soapy." Such kinds are very tasty if they are roasted or fried in fat or dripping. King Edward is not regarded as a potato for the epicure, yet it is very popular with townsfolk. I have often wondered why this popularity should be, and have come to the following conclusions: (1) It is distinctive—a townsman calls it a pink potato as distinguished from the white-skinned varieties; (2) there are very few diseased tubers: if a buyer finds half a dozen bad tubers in every quarter of a stone that he buys he naturally has a dislike to paying for so much waste; (3) it can be cooked in any kind of way, and however used has a tolerable flavour; (4) you can leave it boiling in the pan and it does not turn black, even if dinner is delayed for half an hour or more.

With regard to my own trials I have noted the following points about the different varieties, some of which may be of use to growers who are making selections for the coming season. I might mention the advantage of growing Scotch seed.

FIRST EARLIES.

America.—White round; immune; rather rough and somewhat deep in the eye; resembles the old variety Epicure, but gives larger tubers and a bigger crop. Good cooking qualities. Strong dark green haulm.

Immune Ashleaf.—An immune variety of the old favourite with better cropping qualities; distinctive ash-leaf-like foliage, medium spreading haulm; kidney-shaped tubers of good flavour.

Di-Vernon.—A new immune variety that improves on acquaintance; kidney-shaped tubers with distinct purple colouring near the eyes; medium spreading habit, with dark green leaves.

Sharpe's Express.—A good cropper, but the cooking qualities are not quite equal to some of the other earlies. White flesh; kidney-shaped; non-immune; haulm upright and spreading.

Witch Hill.—An excellent first early that comes in just before the second earlies. Very good cooking qualities. A good cropper. Kidney-shaped, with shallow eyes. This variety will keep well, and can be used along with the main-crop varieties if needed. Immune.

Arran Rose.—A coloured potato; pale rose, with a netted skin that denotes good cooking qualities. I find this variety gives quite a good crop. It is also a good exhibition potato. Immune.

SECOND EARLIES.

Arran Comrade.—An ideal potato for the garden. It is an excellent cooker, being quite equal to Arran Chief in quality. Round, evenly sized tubers with shallow eyes. Ideal habit. Immune.

Katie Glover.—A new variety of distinct colouring. The tubers are pebble-shaped, with a pinkish flush around the eye. The crop is above the average, although there are few large tubers. Good cooking quality, and it also keeps well. It has a splendid habit. The foliage is of medium height and affords plenty of cover.

Great Scot.—A very popular variety, and deservedly so. It gives a large crop, and although the eyes are sometimes rather deeply set and the very big tubers sometimes come hollow, these are the only faults one can find with it. It has a tall, upright and vigorous growth with dark green leaves.

Majestic.—A large white kidney-shaped potato that has rapidly come to the fore. It is an immense cropper, and although it has a smooth skin it is not a bad user. The skin is very thin, and because of this two points should be observed. It does not require too liberal a dressing of animal manure and it will not bear rough handling. Immune.

The Ally.—A very good user that may be described as a white oval variety. In some districts this is a very popular variety, and I should think that it succeeds best on a light loam. Immune.

LATE OR MAIN CROP VARIETIES.

Arran Chief.—Too well known to need much comment. It is one of the best table potatoes, and where it can be grown free of canker it should be regularly planted, as it is a big cropper.

Golden Wonder.—This is THE potato for the epicure. It is among potatoes what Cox's Orange is among apples. It has a nutty flavour and cooks very floury. Not a very big cropper unless grown from Scotch seed. I grew a very select stock from Fifeshire in 1923, but the tubers saved from this stock did not yield such a large crop the following season.

The Bishop.—I consider this one of the best of the main-crop varieties. It is an ideal exhibition variety, giving beautifully formed kidney-shaped tubers with very shallow eyes. The haulm is medium and slightly spreading. Immune.

Roderick Dhu.—The tubers are round to oval, rather deep in the eye, but of good quality. The haulm is tall, upright and very vigorous. A variety to plant where rough ground is being cleaned. Immune.

Crusader.—A kidney-shaped variety with shallow eyes. It is a good cropper and the quality is fairly good. It has a vigorous upright growth.

NORMAN LAMBERT.

SOME GARDEN IRISES

BY W. R. DYKES.

IN recent years irises have become much more popular as garden plants than they were twenty or even ten years ago and many beautiful new varieties have been raised by hybridisation and are now available in this country. There are many good irises, one or other of which will be in flower at intervals throughout the year and which deserve to be far better known than they appear to be at present.

Take, for instance, the Algerian I. unguicularis or stylosa, which, when established at the foot of a south wall in soil containing a good proportion of mortar rubble, will begin to flower in October or November and continue into February and March. In how many gardens is this beautiful flower still unknown!

No one expects to have Christmas roses at their best in December and January without covering the plants with glass, and yet the irises which flower in the first days of the New Year are neglected because the blooms need the same protection if they are to last their full time of a week or ten days. Few sights are, however, more charming in January than a cold frame filled with the brilliant blue flowers of I. histrioides or with the gorgeous colours of I. Rosenbachiana. Of the latter I have raised several hundreds from seeds, of which I obtained my first supply from Sir Michael Foster as long ago as 1906. There is infinite variety in the colours of the flowers, which rise to a height of 4ins. or 6ins. above the sheath that still encloses the young

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leaves. A little later come I. persica and its relatives, I. Tauri, with its flowers of dark red-purple and gold, and I. stenophylla, with its two shades of blue-purple. Even more attractive is the hybrid persind, with beautiful pale turquoise blue flowers.

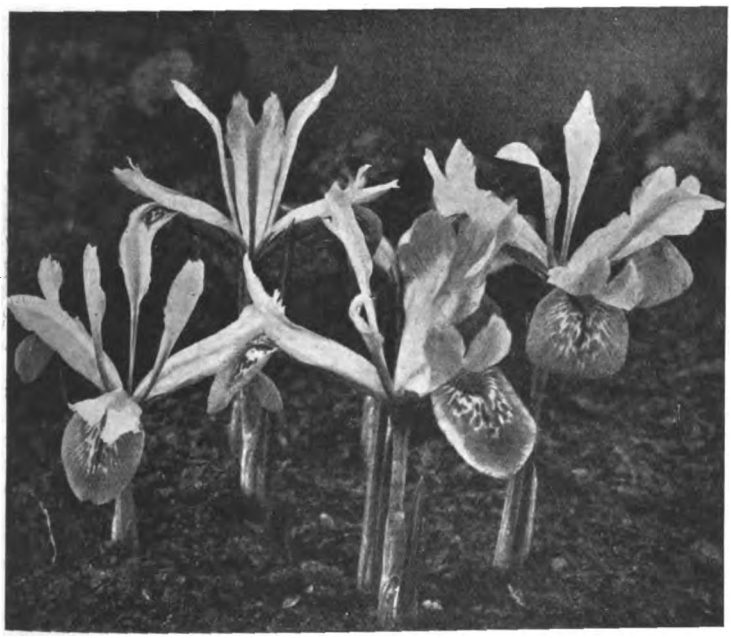
It is difficult to understand why the more vigorous of the Juno irises, such as I. bucharica, are not more widely known, and yet there are few more beautiful bulbous plants that flower in April than this species and some of its hybrids. They are perfectly hardy and grow well in any light, rich soil that is not slug infested. The plant grows to a height of about 20ins. or 2ft. and each stem bears as many as six or seven white and yellow flowers in the axils of its broad, shining leaves. These irises are no trouble whatever to grow for they may be left undisturbed for about three years, until in fact the bulbs become so crowded that it is well to lift and separate them. The fleshy roots, which remain attached to the bulbs during the resting season, are very brittle when they are first lifted, but become tougher after a few days, and it is better therefore to wait a week before attempting to separate them. They should be lifted, when necessary, in July, and nothing is gained by keeping them out of the ground after September. The best position is a sunny border sheltered from the north and it must be remembered that the bulbs will not tolerate disturbance except when they are at rest during the summer months. Lifting in October

I. Douglasiana, of which every seedling seems to be different in colour and markings, while I. tenax is even more floriferous, though its foliage is deciduous. These Californian species like a light, rich soil and will not grow satisfactorily in chalk.

Two larger species, I. longipetala and I. montana, are vigorous enough to hold their own in a mixed border and are more at home in a heavy soil than those previously mentioned. Moreover, they will tolerate some lime in the soil.

Another good border species is I. graminea, though it is a plant which many would pass without comment. The flowers of red and blue-purple are richly coloured enough, but often hide themselves among the close-growing foliage. Their special merit is that they have the sweet fragrance of a warm, ripe plum. I. graminea is easily raised from seed; it will grow in any good border soil and may remain untouched for several years. If the clumps have to be moved, the best time is the late summer, when fresh roots are still pushing out from the slender, hard rhizomes.

Taller relatives of I. graminea, namely, I. ochroleuca, I. Monnieri and I. aurea, are all good border plants, valuable for their tall stems, rising to a height of 4ft. or more, and for their stiff, upright foliage. The first has flowers of white and yellow, the second is a pale lemon yellow, while the third is of a deep golden yellow. They all do well in rather stiff soil and flower



THE CHARMING BRILLIANT BLUE FLOWERS OF IRIS HISTRIOIDES.

THE DAINTY IRIS ROSENBACHIANA, WITH BLOOMS OF THE MOST GORGEOUS COLOURS.

or November with the occupants of an ordinary herbaceous border would probably be fatal.

Not every gardener seems to realise the fact that the best way to ascertain when to move a plant is to examine its roots, and not every gardener seems to be aware that bulbs differ very much in their methods of root formation. Some, such as tulips and crocuses, produce annually only one crop of roots and, if the bulbs are disturbed after the roots have grown in the autumn, they will certainly be severely checked and take a year or two to recover their strength. Fritillarias behave in the same way, but their roots are so fragile that the check is even more severe, and so it is with bulbous irises.

In these labour-saving days, when more and more of our gardens are being planted with flowering shrubs, there seems no reason why we should not plant between them some of the Californian species, several of which are practically evergreen and all of which have a comparatively long flowering period. Seeds should be sown in pots in the open in the autumn. As soon as germination takes place, the pots should have the protection of a frame or cold house and the young plants should be encouraged to make rapid growth. They will then be big enough to be planted out in their permanent positions before the end of May and, given a favourable year, some will flower in the following season. The best species for this purpose is best if they have abundant moisture during the growing season in spring and early summer and a thorough ripening when their growth is over for the season.

Some forms of I. ochroleuca are the tallest of all irises and among the smallest are I. cristata and I. lacustris, two American irises, of which the former is 4ins. or 6ins. high and the latter only 2ins. or 3ins. These should be grown in a moist, half-shady position in a soil composed of well rotted leaves and fine gravel. Never plant these irises in the autumn, for failure is then almost certain, unless indeed they are obtained in pots. The best time to begin is in June, a week or two after the flowers have faded. Then it will be found that each flowering shoot has branching out from it three or four young tufts of leaves. These should be cut off and re-planted immediately. They must then be kept moist for a few days and will quickly send out new roots and each one should flower in the following season. When I. cristata is treated in this way it will produce sheets of its pale lilac flowers in May, so closely set as almost to touch each other. A moist, half shady position, such as that which suits primroses, is also the best for the daintiest of all irises, I. gracilipes, which flourishes in copses on the hillsides in Japan. Hot sun will soon shrivel the slender rhizomes, which are, however, easily cultivated in such a position as that described. The plants should be frequently top-dressed with well rotted leaf-soil

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HONEYSUCKLES

BY EDWIN BECKETT.

THIS GENUS IS A WIDESPREAD ONE, COMPRISING SOME HUNDRED AND FIFTY SPECIES, MANY OF WHICH ARE USEFUL IN THE GARDEN FROM THE POINT OF VIEW OF DECORATION.

TOWN bred, or country bred, there are but few folk who would not recognise the fragrant honeysuckle or woodbine growing wild on an English hedgerow, or fail to experience a thrill at the sight of its rambling beauty, or enjoy its fragrance. Unfortunately, the thrill is generally rapidly replaced by a covetous desire to possess, and the floral gem is thereafter ruthlessly dragged from the host plant which supports it. If, however, some of the other hundred and a half forms of honeysuckles were before them, how many would recognise them as such, or how many would realise that there are two very distinct groups, to wit, the climbing and the bush species and their varieties, each group well distinct in growth, and yet most closely linked in character. At Aldenham we have from time to time possessed about ninety different species and varieties, and we have record of over another sixty that have yet to chance our way. Some are beautiful in flower, others in fruit, and worthy members of a good shrubbery,

A BEAUTIFUL SMALL FLOWERED FRAGRANT SPECIES FROM CHINA, L. SYRINGANTHA.

while a number are more interesting than lovely, and must therefore be relegated to the wilder parts. Some are climbers, some are bushes, some evergreen, some deciduous, some fragrant, and others lacking this attribute, and a large and useful family they prove in a comprehensive collection of trees and shrubs.

As a group they might well be classed for general utility even ahead of the very lovely berberis family, for surely there is not a part of the garden that cannot have its representative honeysuckle. There are a number of climbers, for instance, that can grace the wall of a house, assist in furnishing a pergola, or help to disguise the bole of a dead tree. Others, again, can act as specimen plants on lawns, or help in the formation of the shrubberies, either in bush form or climbing up poles placed for the purpose. Some can brighten the woodlands, and one in particular is an ideal hedge plant, but even yet, among shrub enthusiasts and lovers, it is doubtful whether the family has come truly into its own. In passing it is as well perhaps to record that, coming under the Natural Order of plants known as the Caprifoliaceæ, the honeysuckles are closely related to those other charming flowering and fruiting families of shrubs, the diervillas, abelias, viburnum and elders.

Our purpose on this occasion will be to try to assist them to emerge from their comparative obscurity by considering some of the more beautiful and useful, and the desire of the enthusiast to record the whole of them, their virtues and individual glories, will therefore be strictly avoided.

THE CLIMBERS OR WOODBINES.—These for botanic classification have been grouped under a sectional heading entitled Periclymenum, or Caprifolium as some authorities term it, in contra-distinction to the bush forms, which are classed as Chamæcerasus, or by some as Xylosteum. There is an intermediate group of creeping and climbing species classified as Nintooa, which are sometimes considered as a sub-section of the Chamæcerasus, but which for convenience sake are ignored in these notes as a group and dealt with under the climbers.

A tender species must be referred to first of all, one that will only succeed in the open in the congenial quarters of this country, such as the south-western counties. It is Lonicera Hildebrandtii, a Chinese native, of very large foliage, and bearing clusters of orange coloured fragrant flowers of gorgeous appearance, the trumpets of which run nearly 6ins. in length. More or less tender in some parts, unfortunately, is the American L. sempervirens, another lovely trumpet honeysuckle, the flowers being a rich tone of orange scarlet without and yellow within, but only about 2ins. to 3ins. long. Compensation exists, however, in another from the same country, L. ciliosa, an old but very rare species here, very beautiful with its terminal spikes of yellow to orange flowers, and there is also the beautiful species from China, L. tragophylla, sent home by Mr. Wilson. It carries terminal heads of from a dozen to twenty bright yellow flowers, fragrant, and 3ins. or more in length. L. flava (America) is a pretty orange yellow, and there is a beautiful species of garden origin, L. plantierensis, and similar forms under various other names, such as L. fuchsioides, which carry glowing red flowers with orange-toned lobes. To finish the flowering climbers we have the ever-precious old L. Periclymenum, or native woodbine, with its flowers yellowish white to red and so sweetly fragrant, of which there are several varieties, the principal of which are L. P. belgica, the Dutch honeysuckle, with purplish red flowers with yellow throats, and L. P. serotina, a late form with purplish flowers, interiors creamy, darkening with age as the exterior of the corolla lightens.

FRUITING CLIMBERS.—Some of the climbing species would be selected for their fruiting capacity rather than for floral beauty, and principal among these would seem to be Wilson's L. alseuosmoides, an evergreen with flowers of purple (yellow within), which are followed by black fruit freely borne. Closely related to this are two others, L. Henryi, with larger leaves, and bronzy orange flowers, followed by purplish black fruits; and L. Giraldii, with distinct bronze-toned foliage and purplish red flowers. All three of these are Chinese natives.

EARLY-FLOWERING BUSH SPECIES.—There are two Chinese species that are always worthy a place in a garden owing to their very early flowering, both being also deliciously fragrant. The earliest is probably Lonicera Standishii, which opens as early as November and continues to February. Mr. Wilson sent home a narrow-leaved form of this called L. Standishii lancifolia, but I do not think there is anything to choose between species and variety with regard to hardiness or beauty. The other species is L. fragrantissima, a creamy white-flowered semi-evergreen, which starts flowering about December and continues until March or April.

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A SPECIES OF RECENT INTRODUCTION, L. LIGUSTRINA YUNNANENSIS.

LATE-FLOWERING BUSHES.—We have probably a little more scope with those that follow the foregoing in the range from which to select, and here we will briefly consider four species. My first choice falls on Lonicera chætocarpa, again sent home by Mr. Wilson, a most lovely primrose yellow-flowered species, closely related to the old Asiatic species, L. hispida. Next, I should select another Chinese native, L. syringantha, a beautiful small-flowered fragrant species, blooming in May and June, the flowers of which, borne mostly in pairs, are lilac pink in colour. Close to this comes the third, L. thibetica, from the Tibetan Hills, the twin flowers of which are borne in small bunches in the leaf axils, and are rather more of a true lilac tone than the former. It is, I believe, rather more shy in its flowering than L. syringantha. The last one of the selection is quite distinct in appearance, though the flowers are again produced in twos, and of rosy lilac colour, being also sweetly fragrant. This is L. Albertii from Turkestan, of low spreading habit and with narrow (⅛in.) bluish grey foliage.

DECIDUOUS FRUITING BUSH HONEYSUCKLES.—There are many bush forms of good fruiting capabilities, and it is not an easy task to select the best, but a few seem to insist on their claims. Lonicera Maackii, for instance, that giant growing bush that one will keep in the shrubberies owing to its flowering and fruiting beauty, seems to come first, and with its white flowers, which turn a deep yellow tinge with age, and are followed by many scarlet twin fruits, must have a place. Then, again, the two American natives, L. Ledebourii, with deep orange yellow flowers, from Oregon, and L. involucrata from the north-western areas with yellow flowers, both having black fruit, deserve a place; and the curious pair, L. quinquelocularis and L. translucens from China, with their translucent fruits of whitish hue, like moonstones, must also be included as curiosities, if for nothing else. One other that deserves notice is the large-growing rounded bush form, L. chrysantha, which is such a lovely sight when clad with its bright scarlet fruits, which seem to be as freely borne as red currants; this comes, I believe, from Amur.

FRUITING BUSHES OF EVERGREEN CHARACTER.—The last for our immediate consideration are three evergreen species from China. Lonicera nitida, the first, is probably one of the finest evergreens yet received from those vast regions, and is the one referred to earlier as being ideal for the formation of hedges. Of fairly stiff, upright habit, it looks at first sight like a very dainty glossy-leaved privet. It is a pretty sight when bearing its small, round, violet berries. Closely allied to it, but of more prostrate habit and longer foliage, is L. pileata, eminently suitable for a "headland" on a large rockery. This, too, carries amethyst fruits, and the last one of all is a wonderful sight when clad with the same toned fruits, borne nearly as profusely as those of Cotoneaster horizontalis. This is of more recent introduction, and has been accorded the formidable title of L. ligustrina yunnanensis.

SOILS AND ASPECTS.—A few words in closing will suffice on this subject. I do not think that loniceras can be considered at all troublesome as to their soils, for they seem to thrive equally well on very different kinds, though possibly fruiting the more readily on the warmer, lighter, moister loams, and as to aspect, well, we grow them in shade and sun, in sheltered spots and exposed positions, and still they seem quite happy under all, and give very little trouble, and in making a selection from the foregoing the would-be grower will not, I think, have to worry greatly on these two, at times, important propositions.

A RARE ASTER

OUR picture shows a small, daisy-like herbaceous perennial that is seldom met with in our gardens. It is Bellidiastrum Michelii or Aster Bellidiastrum from the Alps and the Jura. Its white flowers are rather similar to those of Bellis sylvestris, and usually appear in great numbers during the months of June and July or even later.

I took the photograph in a very interesting place in Lower Austria, at Purgstall, the residence of Count Herbert Schaffgotsch, who is one of the keenest amateurs of alpine plants. In the rocks through which the green waters of the Erlaaf are swiftly running bellidiastrum may frequently be seen in a half-shady place. It is easily propagated by division and seed, and cannot be recommended for a small rockery, except in a position where it can bespread itself; it is of no small ornamental value during its flowering time. CAMILLO SCHNEIDER.

BELLIDIASTRUM MICHELII, MORE LIKE A DAISY THAN A STARWORT.

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THE MANURE PROBLEM—II

THAT the effects of artificial manures are very largely controlled by weather conditions makes efficient manuring more difficult and partly explains why it is impossible to adhere to hard and fast rules. At the best it is only possible to generalise and it behoves the gardener and cultivator of the soil to "put his thinking cap on," to grasp the general principles of manuring and proceed.

The functions of the chief groups of manures have previously been touched upon and it is now desirable to discuss more generally the functions of the individual manures comprising these groups.

THE NITROGENOUS MANURES.

The nitrogenous manures comprise a large group and include both artificial and organic substances, the functions of the latter are best left for discussion until later on.

NITRATE OF SODA.—Generally speaking nitrate of soda should not be used on heavy soils; it has the undoubted effect of destroying the tilth and making the soil to a great extent unworkable—exactly how this is brought about is best left to the scientist to explain. Lime is no use to counteract such a condition, but applications of an acid manure, such as superphosphate, have a good effect.

Nitrate of soda is useful apart from the nitrogen it supplies to the plant. The soda it contains (although of no use directly to the plant as a plant food), is effective in releasing the insoluble potash contained in the soil, thus making it useful to the plant, indeed, this releasing of the potash is so effectual in some soils that it does away with the necessity of applications of soluble potash manures. The effect is chiefly noticeable on medium and light soils, but on the very light soils—where potash is usually very deficient—the soda seldom makes up for the deficiency of potash.

Nitrate of soda is so often termed a soil scourge that such criticism must be met. It is true with nitrate of soda—and with, indeed, any other active fertiliser supplying only one plant food—that if used alone regularly it depletes the stores of other plant foods in the soil. The deficiency must be remedied by applications of the used-up plant foods, *i.e.*, potash and phosphates.

The chief value of nitrate of soda over other manures is that it is of immediate use to the plant The chief points to bear in mind when contemplating using nitrate of soda are:

Do not use it on a heavy, clayey soil.
Use it with phosphate and potash.
Use it only on crops which can make immediate use of it.

The quantity to use for general purposes is from 1lb. to 1½lb. per square rod of ground.

SULPHATE OF AMMONIA.—A *sine qua non* for sulphate of ammonia to give the best results is that the soil should contain calcium carbonate to counteract the acid conditions set up by the manure. It is generally accepted by practical cultivators of the soil that better results follow from the use of sulphate of ammonia in a wet season, owing to it not being so easily washed out of the soil, but this view is not always a popular one with scientists. It has an advantage over nitrate of soda, in that applications of it do not act adversely on the tilth of the soil, in fact, they tend to improve it. It is also useful from the point of view that it can be mixed with other popular manures, where nitrate of soda cannot, and is especially valuable for the potato crop. Its application is similar to that of nitrate of soda.

NITRATE OF LIME.—This fertiliser is chiefly valuable as a substitute for nitrate of soda on heavy soils. Its effect on plant growth appears to be similar to that of nitrate of soda, but the lime it contains has its beneficial action upon heavy soils. It should be applied in spring. It is very necessary to keep the fertiliser dry and covered up, as it readily absorbs moisture and becomes difficult to use when exposed to the air.

Some new introductions in nitrogenous manures are being tested and some of them are likely to prove very attractive from many points of view.

THE PHOSPHATIC MANURES.

SUPERPHOSPHATE OF LIME is the most popular manure in this class, its popularity undoubtedly being due to its quick action and usefulness on most soils. A condition necessary for its success, however, is the presence of calcium carbonate in the soil on which it is used. Superphosphate is chiefly beneficial to the shallow rooting crops and is especially valuable for potatoes. These results are explained by the fact that much of the phosphoric acid contained in the superphosphate remains in the surface soil.

BASIC SLAG.—Applications to heavy soils often give superior results to superphosphate. The lime it contains is of assistance in improving the texture of the soil, and also in releasing potash. There is a very marked prejudice against the use of basic slag on light, dry soils and practical men seldom recommend its application to such soils, since their dryness is said greatly to minimise the effectiveness of the manure. This prejudice, however, is not universal, and good results have followed an application of basic slag on similar soil, deficient in carbonate of lime, but a condition for its success appears to be a wet season. It is probable, too, that the good results in some cases are due to the lime contained in the slag.

BONE MANURES.

From a gardening point of view it is questionable if the use of bone meal is justified by its price, except when used on lawns, where good results are often obtained. Bone meal is very slow in its action and its comparative ineffectiveness is said to be due to its coarseness. Bone meal and steamed bone flour are best treated as substances supplying phosphates, although a certain amount of nitrogen is supplied.

STEAMED BONE FLOUR.—The fineness of this production makes it more valuable than bone meal for supplying phosphoric acid, and from many points of view it should be purchased in preference to bone meal owing to its quicker action.

POTASSIC MANURES.

The soils which benefit usually from applications of potassic manures are the sandy and gravelly ones.

SULPHATE OF POTASH is from many points of view the most satisfactory form in which to supply potash; for crops under glass its usefulness is every year becoming more manifest in building up the constitution of plants and protecting them from attacks of fungi. In some cases of attack of "stripe" disease on tomatoes the plants have completely recovered when applications of sulphate of potash have been given. As a constituent in a complete fertiliser it is indispensable for potatoes.

KAINIT.—It is absolutely essential that kainit, when used, should be applied in autumn and winter to get rid of the harmful substances it contains. It is not such a popular manure as sulphate of potash, although on some soils it has produced excellent results. When applied to potatoes it appears to lower the quality of the tubers. H. C. ELSDON.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

All communications should be addressed to the Service Department, THE GARDEN, 20, Tavistock Street, Covent Garden, London, W.C.2.

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A SIGN OF SPRING AT VINCENT SQUARE

WITH every fortnightly show at the Royal Horticultural Society's Hall, Westminster, one notices a great difference in the number and, above all, in the quality of the exhibits, and on February 24th one was not disappointed, as a distinct advance had been made from that in the previous show. Despite the inclemency of the weather the exhibits were above the average for this time of year. All branches were represented, from alpine and rock plants to flowering shrubs and roses, and bulbs in the shape of tulips and hyacinths. Greenhouse plants were chiefly represented by cyclamens, which were in excellent condition and which, along with the carnation groups and the azaleas, lent a touch of brighter colour to the Hall. The ever-increasing interest which is being taken in all matters pertaining to gardening and general horticulture was manifested by the large attendance.

On entering the Hall one of the first sights which arrested the attention of visitors was the bed of fresh green grass with drifts of crocus, shown by Messrs. Carter and Co., and then, as the sweet and pungent scent of hyacinths reached the onlookers, they glanced in the direction from whence it came and one look made them eager to see more closely the excellent exhibit of Messrs. Bath and Sons. Hyacinths and tulips of every colour, crocuses, daffodils and narcissi were all grown to perfection in bowls, so that the remarkably strong and vigorous growth could be well appreciated. The hyacinths were exceptionally large and fine in colour. Schotel was a lovely clear blue, shaded with lilac and the fleshy bells were borne loosely on a long spike. The pale and delicate lavender-blue flowers of Enchantress were more compact than Schotel. Pure white hyacinths are always attractive. For spotless whiteness and regularity in shape there was hardly one to equal La Grandesse. One of the best late varieties, King of the Yellows was exhibited and delicate in colour was the blush pink of Jacques.

Both in hyacinths and tulips a deep purple seems to be one of the most popular shades. For indoor decoration this tone is well adapted, but the reds, pinks or mauves are much more effective for bedding. Among the hyacinths shown by Messrs. Bath, the variety L'Esperance was of this shade, the bells were small, but compactly arranged on a long spike. Both the tulips Van der Neer and Queen of the Violets were purplish in colour. The flowers of Van der Neer were large and somewhat heavy in appearance. Two good bedding tulips, Cramoise Brilliant, a vivid vermilion scarlet with a yellow centre, and Duchesse de Parma, an orange red edged with yellow, were particularly noticeable. The crocuses were perhaps a little too tightly packed in the bowls, but the masses of flowers so formed made a pleasing contrast with the yellow narcissi. There were pale mauves, deep mauves, whites with large orange anthers, as well as Pallas, a white, prettily veined with mauve and the rich purple Purpurea grandiflora.

The trumpet daffodils, the incomparabilis, the Barri, and the polyanthus were a few of the types of narcissi represented on Messrs. Bath's exhibit. All of them were very robust and good in colour. The deep gold flowers of King Alfred on stems almost 24ins. in length, stood out from among the rest. A sweetly scented variety was Victoria, which has a creamy white perianth and rich yellow trumpet. W. P. Milner seemed very dainty and small beside the large trumpet varieties. Several of the narcissi shown by Messrs. Barr and Sons, especially some of the unnamed ones, were very fine. Narcissus Maximus had pointed, twisted petals and was deep orange, and N. Alasnam was exceptionally large.

The lachenalias shown by Messrs. Barrs added greatly to the interest of the group.

THE FREE FLOWERING LACHENALIA, EXCELSIOR SEEDLING.

These early spring-flowering greenhouse plants are almost unique in colour and texture. No other flower possesses quite the same shade and waxy appearance. The beautiful orange colours and free-flowering habit of the lachenalia were well displayed by this exhibit. Deepest in tone were the seedlings, which seem to be a very good strain. Leiden, with orange flowers borne on reddish stems, and Monte Carlo, with golden flowers shaded with red, were two good varieties. Nelsoni and Siam, which have been raised quite recently, are a marked improvement on the old varieties.

Two of the best and most outstanding exhibits were of cyclamen. Messrs. Sutton and Sons had a magnificent display and the Caledonian Strain Floriculturists staged a larger and more varied collection than at the last fortnightly meeting. The varieties on Messrs. Sutton's stand were arranged separately in bold groups and the intervening space was bedded with moss. In this way the contrast between the different colours could be well appreciated. The development of this plant was cleverly brought home to the onlookers by the introduction of the modest and dainty Cyclamen persicum, the source of the florists' cyclamen, especially when comparing it with such a variety as Giant White. The brilliancy of the colours, the strength and large number of flowers on each plant must have been commented on by many people. This firm has set a high standard of culture for the average grower to attain. Firefly and Giant Shell Pink were two of the best colours. Neither of them possessed the bluish tinge which is present in so many others. Firefly was a vivid cerise scarlet, alive with colour, and Giant Shell Pink had large flowers; the base of the petals were pinkish red and the white ground was shaded with pink, giving the appearance of the pink having run into the white. Giant Crimson and White had to a slight extent this shaded effect. Hydrangea was a mauve-red, and for depth of colour the rich velvety crimson of Vulcan was unsurpassed. Other good varieties were Giant Salmon, White Butterfly and Queen Mary. Giant Ruby, although not so good as some, was interesting, as it was sown during February last year and commenced to bloom in October. This is an excellent proof of the usefulness of the cyclamen.

The Caledonian Strain Floriculturists excel in the frilled varieties. Lady Helen Cassel was again shown and is more attractive than the new sport, a double flowering pink; this was good in colour but inclined to look heavy. It will probably appeal to some as it is quite a novelty. Septimus F. Beck, a shaded red frilled variety, blended well with Silver Leaf Salmon. The well marked silver foliage is a welcome change.

The stand of Messrs. R. and G. Cuthbert of Southgate, Middlesex, presented a perfect feast of colour to the eye. There was a pleasing and soft mixture of the most beautiful shades of salmon, orange, rose, carmine, yellow and lemon, and many hues and tints quite indescribable. The azalea is about the only plant which can provide such a variety and wealth of coloured blooms. Apart altogether from being useful for greenhouse decoration, it is well adapted for planting out in large beds. They are all exceptionally hardy, and certainly a bed planted out in such splendid colours as Messrs. Cuthbert exhibited can scarcely be surpassed in cultivation. Seedlings and varieties of Azalea mollis were shown in abundance, such varieties as Brilliant, with trusses of a brilliant scarlet, one of the best; Chevalier de Reali, creamy white, spotted with orange; and Comte de Gomer, with a large truss, made up of rose-coloured flowers. Many splendid hybrids of A. mollis and A. sinensis, with larger flowers and colours even more brilliant than A. mollis, were also exhibited, the chief varieties being Anthony Koster, rich pure golden yellow; Nicholas Beets, deep orange; and

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W. E. Gladstone, with warm orange yellow flowers. It was a fine exhibit of bloom and Messrs. Cuthbert are to be congratulated on the high standard reached in the raising of seedlings of this beautiful genus.

Most of the space in the exhibits of rock plants was taken up again by the Kabschia saxifrages.

The hybridist has been busy in this group. usually with happy results, though here and there a hybrid seemed rather vague in outline and washy in colour beside the clear cut elegance of its parents. S. Jenkinsæ, shown by Messrs. Cheal, is an improved Irvingii, the flowers, larger and of a more decided pink, are produced as freely as those of Irvingii and seem less liable to lose their colour. On the same stand Shortia galacifolia made an early appearance; it is not a common plant, but it deserves to be better known for the refinement of its large soldanella flowers showing up cleanly against the bronze leaves. Like many woodlanders it is sweetly scented.

Messrs. Prichard showed a large number of hybrid saxifrages of their own raising. Lady Beatrix Stanley, one of the most showy,

KITCHINGIA UNIFLORA WITH ITS GRACEFUL PINK BELLS.

with deep purplish-pink flowers; Amenity, a Burseriana hybrid, interesting for the terra-cotta of its stems, which somehow spreads faintly into the flowers and gives a curious warm tone to their whiteness; H. Marshall, with very pale lilac-pink flowers that open well without betraying the looseness that mars many of these hybrids.

Messrs. Tucker of Oxford showed a large group of the beautiful and free-flowering S. Burseriana sulphurea, S. Sundermanni (of Kew), a Burseriana in flower but with a much tighter, frostier rosette; S. Sundermanni (of Engler), a purplish pink Engleria hybrid; S. bursiculata, S. Franzii and many others. Messrs. Tucker also showed the uncommon Ranunculus anemonoides from the Austrian Alps, large regular flowers, like those of a flatter, neater Anemone blanda, in white, very faintly suffused with pink, radiating from a tuft of waxy, glaucous leaves. A very distinguished alpine.

The well arranged exhibit of Messrs. Cutbush included a bush of Rhodora canadensis, covered with its honeysuckle-shaped flowers in that shade of lilac pink that is all too common in its near relatives the Rhododendrons.

Messrs. Reuthe showed a pan of Tecophilæa cyanocrocus, the gentian blue Chilian "crocus," that would be very welcome in the alpine house were more of it available. The plants shown were raised from English seed, but this is produced very sparingly and re-importation of the bulbs is really needed.

Among the other exhibitors were the following:

BULBS.—Messrs. Barr and Sons.

CARNATIONS.—Messrs. Allwood Bros., C. Engelmann and Stuart Low and Co.

CROCUS.—Messrs. Carter and Co.

FORCED SHRUBS.—Messrs. L. R. Russell, Stuart Low and Co.

FRUIT.—Messrs. Westmacott and Co., Limited.

ORCHIDS.—Mr. F. J. Hanbury, F.L.S., V.M.H., Mr. H. T. Pitt, Messrs. Stuart Low and Co., and Sanders.

POLYANTHUS.—Messrs. G. A. Miller.

RHODODENDRONS.—Messrs. R. Gill and Son.

ROSES.—Messrs. Elisha J. Hicks and George Prince.

SHRUBS AND ALPINES.—Messrs. Bakers, Barr and Sons, Maxwell and Beale, Carter Page, G. Reuthe, F. K. Wood, Skelton and Kirby, Waterers, and R. W. Wallace.

VIOLETS.—Miss E. Heathcote, Baldwin Pinney and J. J. Kettle.

TOPIARY.—John Klinkert.

ARTISTS.—Maud Angell, Nellie Blacklock, Winifred M. A. Brook Marion Brown, Edith Fisher, Agnes Foreman, Champion Jones, E. D.'O. Rowe, Mrs. Henny Spenser, Winifred Walker, Alice Wilkinson, Ellen Warrington.

DRIED SPECIMENS OF PLANTS.—G. Claridge Druce, D.Sc., LL.D.

GARDEN ARCHITECTS.—R. and E. Hopkins and Percy S. Cane.

NEW & RARE PLANTS.

CYCLAMEN PERSICUM "GIANT SHELL PINK."—It is well known that C. persicum is the source of the standard florists' varieties which are of so much value for duration of bloom, variety and wealth of colour, in the greenhouse. The variety under consideration differs from the type species in its larger size and also in colour of flower. The leaves are of the usual oval shape, marbled with white and vary from 1½ins. to 3ins. across. The large, scentless flowers, made up of oblong segments of a deep shell pink in colour, are carried on erect scapes 9ins. to 1ft. high. It appears to be a free-flowering variety and should form a valuable winter-flowering plant. Award of merit. Shown by Messrs. Sutton and Sons, Reading.

PLECTRANTHUS CHIRADZULENSIS.—This might almost be termed a herb or sub-shrub, which in cultivation reaches from 2½ft. to 3ft. high. Flowering sprays were exhibited which indicate the slender and graceful habit of the plant. The leaves are toothed and somewhat resemble the common nettle. The flowers are borne in light, loose terminal panicles, varying from 6ins. to 9ins. in length. These are of a delicate, light blue in colour and have a long lip characteristic of the family to which they belong. The genus itself is closely allied to coleus. It is valuable as an ornamental herb in the greenhouse on account of its winter-flowering. Award of merit. Shown by Sir John F. Ramsden, Bealstrode Park, Gerrard's Cross, Bucks.

RHODODENDRON SUTCHUENENSE × CORNUBIA.—This is an unnamed hybrid between these two parents and combines the qualities of both exceptionally well. It carries dense heads of flowers and the long leaves, characteristic of sutchuenense, although perhaps the foliage is of a lighter green. The flowers are large, from 2ins. to 3ins. across, of a deep rose colour, spotted at the base of the lobes, which are broad. Award of merit. Shown by Colonel S. R. Clarke, C.B., Borde Hill, Cuckfield, Sussex.

LACHENALIA EXCELSIOR SEEDLING.—This is a new variety of one of the most popular and attractive subjects for the cool greenhouse. The flowers were of the favourite type, being long and bell-shaped, of a deep yellow colour tinged with red or magenta at the edges. The plants showed the merits of careful cultivation, bearing twenty to thirty flowers on the one stalk, which reached almost a foot in height. This variety easily upholds the high standard which has been reached by others of this genus. Award of merit. Shown by Messrs. Barr and Sons, Covent Garden.

CROCUS BLUE BUTTERFLY.—Dainty and graceful hardy plants from 2ins. to 2½ins. high. The flowers are of an intense light blue colour. The blue colour of the segments is set off to advantage by the brilliant orange-coloured stigma. In the interior of the segments the light blue shades into yellowish white. It is a hybrid between C. ærius and C. chrysanthus. Award of merit. Shown by Mr. H. McD. Edelsten, Hillside, Lindfield, Sussex.

KITCHINGIA UNIFLORA.—This is a comparatively new plant, having been introduced only some twenty years ago from Madagascar. A small pot was exhibited by which the general habit of the plant could be judged. The slender-growing stems are more or less prostrate and carry numerous small rounded fleshy leaves. As the specific name suggests, the stems ought to bear one flower, but this is not so, as many graceful little bells of a lovely pink colour are to be found on each stem. It appears to be an ideal plant for a cool greenhouse. Award of merit. Shown by the Director, University Botanic Gardens, Cambridge.

ORCHIDS.

AWARDS OF MERIT.

DENDROBIUM MISS FLORENCE E. KING (nobile nobilius × Artemis).—A richly coloured flower of the nobile section, the segments broadly developed, deep purplish with a crimson tint, the labellum having a central blotch of intense crimson, around which is a narrow white border, the outer margin purplish. From Mr. F. J. Hanbury, Brockhurst, East Grinstead.

LÆLIO-CATTLEYA SHEILA (L.-C. Britannia × C. Clotho).—The two large flowers of this pleasing novelty were of light rose colour, the petals well above the average size, the handsome labellum effectively crisped at the margin, the central area rich purple, and the throat yellow. The specific name is apt to be confused with L.-C. Shyla (L.-C. Pizarro × C. Octave Doin), recorded by Messrs. Stuart Low and Co. in 1922. Shown by Sir H. S. Leon, Bt., Bletchley Park, Bucks.

CYPRIPEDIUM ROBERT PATERSON VAR. BRILLIANCE (Eurybiades × Memoria F. M. Ogilvie).—A bold flower in which the dorsal sepal has a white ground, marked with confluent spots of crimson-purple, and with a suffusion of the same colour in a central vertical line. Petals very broad, and, with the labellum, yellowish heavily stained with mahogany-red. From Messrs. Flory and Black, Slough.

CYMBIDIUM REDSHANK (insigne × Redstart).—A charming new cross. The spike bore eight white flowers, the labellum lined with crimson on the side lobes and with a suffusion of similar colour on the front lobe. Shown by Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt, Tetbury, Glos.

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SIMPLE GARDENING

PLANTING ROSES.

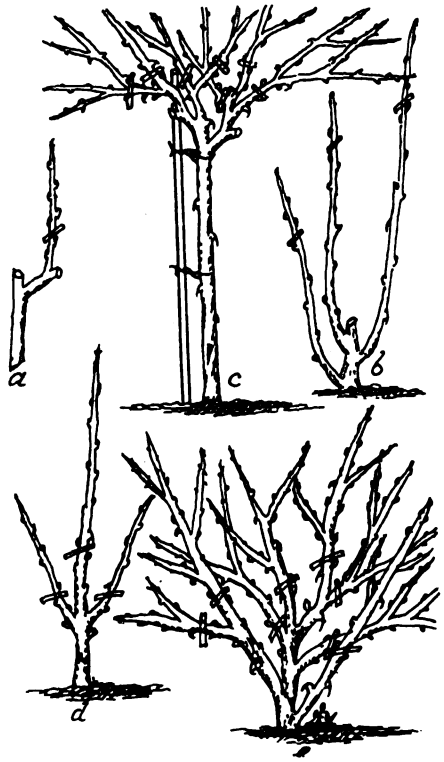
ROSES planted at this time of the year, and in soil that is fairly dry, will succeed much better than those planted in mid-winter while the ground was in a sodden state and very cold. The soil will soon be much warmer and rose trees always thrive best when their roots are in warm soil during the spring months. It was impossible to plant roses satisfactorily, during the autumn and early winter months in many parts of the country, as from north to south the ground was in a very bad state. Of course, a great deal of care must be taken, not only while doing the actual planting, but for several weeks after, so as to avoid a big check to growth after the young roots begin to grow. At all times it is very essential to success that the roots of roses and fruit trees especially, are kept in a moist state while they are out of the soil. Directly the rose trees come from the nursery immerse them for several hours in a cistern or tub filled with clear water before they are planted. The soil should be trenched, if possible, or at least very deeply dug. Naturally rich soil need not be manured, as a top-dressing of manure after planting will be sufficient in this case. But poor soil needs manure and the latter should be mixed freely with it at the time of digging, the top-dressing of half-rotted manure being applied as well, in due course.

HALF-HARDY ANNUALS.

There are many kinds of half-hardy annuals suitable for growing and flowering in a greenhouse. In this note, however, I am referring solely to those for use in the flower garden or window boxes, for filling borders or for cut flowers. There are some real gems among the plants and the work connected with their cultivation is very interesting. Generally, the first week in March is a suitable time for sowing the seeds, as the latter must be sown under glass and given protection for a time. Some cultivators will have cold frames available for the raising of seedlings. If the frames are low ones it is not absolutely necessary to use boxes as well, as the seeds may be sown in a prepared bed of soil. Now, a small frame, measuring, approximately, 4ft. 6ins. by 3ft. 6ins., would contain grand batches of seedlings; the best plan being to sow the seeds in drills. The bed of compost should be about 1ft. from the glass and contain some well rotted leaf-soil and old mortar rubble or coarse sand. Form shallow drills 4ins. apart and sow the seeds thinly in them, covering them judiciously according to the various sizes of the seeds. Example: Aster seeds should be buried nearly a quarter of an inch deep, stock seeds not quite so deeply; nasturtiums a little more than half an inch deep. Some old lime rubble is beneficial in the compost used for the seedlings when they are transplanted. This may be done in beds, in frames or in boxes. Overcrowded and weakly growth should be avoided, and due hardening of the young plants prior to planting them where they are to flower should be given.

PRUNING ROSES.

Every rose enthusiast will be anxious to start pruning his favourites, and, undoubtedly, early pruning is best if we could guarantee the weather to be just right for the resultant new shoots. Not only the weather, but the district and condition of the plants must be taken into consideration. In dealing with hybrid perpetual roses I like to cut back some of the shoots on each plant less severely than others, then, if the new growths are blackened by late frosts the extreme end may be cut off and the basal bud on each spur, if I may so name it, will grow strongly, though a little later, and ensure a supply of flowers.



Instead of cutting off the end, the blackened shoot only may be rubbed out. Then there is another point to consider when engaged in pruning work; as some varieties are less robust than others they require rather more severe cutting—the resultant shoots are stronger. Naturally strong-growing sorts should be cut less severely, the resultant new shoots are then more suitable as bloom-bearers, not being too soft and pithy. A weakly-growing plant should be cut back to two buds; a strong-growing one to four or even five buds. Hybrid tea roses are not pruned as severely as hybrid perpetuals, and rambler roses have unripe ends of shoots cut off and weakly stems removed altogether—thinning-out, as it were. The shoots should be cut off as denoted by the cross lines. The letter *a* shows how to prune a one year old shoot from the bud; *b* a rambler; *c* a standard; *d* a young hybrid perpetual, and *e* an old specimen.

PLANTING VIOLAS AND PANSIES.

Violas are planted in their flowering quarters in autumn or spring. Where the soil is light, autumn-planting is successful; but spring-planting is best in the case of heavy soils. The soil should be deeply dug and well enriched with rotted manure, leaf-soil and coarse grit. When spring planting must be done it is better to be early than late with the work so that the plants may get well established before the hot weather comes. This is a very important point where the soil in the garden is light. Before planting, closely examine the specimens and cut out, close to the base, each straggling shoot and also remove every flower bud found. The planting should be done when the soil is dry, so that it can be firmly pressed round the base of each plant with the fingers. Of course, cool positions are better than hot ones; also a fairly strong, cool loam, but not one containing stagnant water. These lovely border plants are raised from seeds sown as early as possible in the New Year, the resultant seedlings being duly transplanted in nursery beds prior to their removal to the flower garden where they will continue the supply of flowers till late in the summer.

PLANTS IN HALLS AND DWELLING ROOMS.

Few persons object to plants in the dwelling-house; even those who possess greenhouses and have them well filled with nice plants, like to have a few of them in the rooms or hall. Certainly, the majority of householders who do not possess greenhouses buy plants. Of course, some kinds of plants are not suitable for indoor culture, while others are. Skill is required in the case of growing plants in a greenhouse; it is, also, in the case of growing them indoors. The following hints will be helpful: Gas fires and lights are harmful, electric lighting is not very harmful. Bulbs may be allowed to remain in the window till their flowers have faded, then the pots should be placed at the foot of a wall outside, in a sunny position for preference. But with the exception of such plants as annuals, which may also be left to flower and die, other kinds are all the better for a change—that is, they should be taken to the greenhouse occasionally and left there for several weeks while other kinds occupy their positions in the dwelling-house. Even where there are no greenhouses many plants may be benefited by placing them in a sheltered place in the garden during the summer months. If possible, grow plants that do not require repotting while they are in the house. Do not apply strong manures to them either in a dry or liquid state; rely chiefly upon clear water—rain-water for preference. Be very careful in applying water, as over-dryness or a sodden state of the soil proves harmful. Smooth-leaved foliage plants should be sponged and syringed occasionally. Avoid all draughts.

GEORGE GARNER.

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GARDENING OF THE MONTH

FLOWER GARDEN.

ANEMONES.—Plant St. Brigid and similar kinds in well prepared beds. Give good drainage. Remove protection from autumn-planted ones.

ANNUALS.—Prepare seed-beds. Thin and weed autumn-sown annuals. Sow at the end of the month in mixed borders or reserve beds any hardy annuals, such as acroclinium, calendula, clarkia, Centaurea Cyanus, eschscholtzia, eutoca, godetia, iberis, lavatera, lupins, malope, nemophila, nigella, Shirley poppies, viscaria, etc.

BULBS.—Plant in woodland when finished flowering inside.

CARNATIONS.—Plant out in border those wintered in frames.

GLADIOLI.—Remove covering from early-flowering gladioli. Plant hardy gladioli at the end of the month. Put sand at the base of the bulbs.

HERBACEOUS BORDERS.—Finish renovation and digging. Fork lightly in between plants if not already done. Take care not to injure the roots. Plant aconitum, delphiniums, lupins, herbaceous phlox, kniphofia, montbretia, etc. Complete planting by the middle of the month. Propagate by root division peonies and Anemone japonica.

LILIUMS.—Plant out those in frames when 6ins. of growth has been made. Choose a shady position. Plant L. Thunbergianum direct into border in bold groups.

PROTECTION.—Place soot and lime round base of such perennials as aconitum, delphiniums, lupins, pyrethrums, etc., to keep off slugs.

ROSES.—Lightly fork over beds. Remove protection from round base or among the branches of tea roses before the buds break. Prune hybrid perpetuals at the end of the month; in warm districts start to prune hybrid teas also. Cut back weak shoots severely, lightly prune vigorous growths. Prune weaker growing varieties more severely than robust ones. Plant if the soil is fairly dry. Mulch with half-rotted manure after planting and avoid any check after the roots begin to grow. Stake standards firmly at the time of planting.

SWEET PEAS.—At end of month sow thinly a few seeds outside, also plant out on the prepared trenches the seedlings raised last month. Stake rows before planting.

VIOLAS AND PANSIES.—Plant out those in frames.

FRAMES.—Take more cuttings of border chrysanthemums. Keep growing temperature in propagation frame. Strike cuttings of delphiniums, phlox, lupins, etc. Plant out violets when they have finished flowering. Protect with mats frames containing seedling annuals. Pinch calceolarias if growing well.

LAWNS.—Begin to mow now. Roll and sweep.

HARDY FRUIT.

APRICOTS.—Protect blossom with fish nets.

FEEDING.—Mulch newly planted trees and old trees.

FIGS.—Prune and train.

GRAFTING.—Carry out as soon as the sap begins to rise.

PEACHES AND NECTARINES.—Protect blossom with double fish nets.

PLANTING.—Complete at once. Plant loganberries and raspberries.

PESTS.—Spray apples and pears just before the buds break. Use Katakilla, a good insecticide, or a solution of 4lb. of soft soap and 3oz. of nicotine to 40 gallons of water. Hand-pick black currant bushes infected with big-bud. If attack severe, burn the bushes. Burn trees infected with silver leaf. Cut out any cankered parts of trees.

PRUNING.—Finish as soon as possible.

VEGETABLES.

ASPARAGUS.—Prepare new beds. Fork over surface of permanent beds and give a dressing of salt.

ARTICHOKES.—Finish planting Jerusalem. Clear off winter protection from globe artichokes and give a dressing of well decayed manure.

BEANS.—Sow broad and dwarf beans. Plant out broad beans raised in heat.

BEETROOT.—Sow turnip-rooted varieties in the open.

BROCCOLI.—Sow thinly in prepared seed-beds.

BRUSSEL SPROUTS.—Sow on a warm border.

CARROTS.—Sow Early Nantes and short-horn varieties. Thin as soon as possible.

LETTUCE.—Sow small quantities on a border.

LEEKS AND ONIONS.—Make a sowing at the end of the month outside. Plant out after hardening off those sown in heat.

PARSLEY.—Make sowing round edge of vegetable garden.

PEAS.—Sow early varieties in succession. Plant out at the end of the month those now hardening off in frames.

POTATOES.—Plant early varieties in warm districts.

SALSAFY.—Make a good sowing now.

SAVOYS.—Sow main crop.

SPINACH.—Make successional sowings.

TURNIPS.—Sow Early Milan varieties.

FRAMES.—Tie up lettuce to form hearts. Make a sowing of carrots and radishes. Ventilate potatoes whenever possible.

SHRUBS.

GENERAL.—Clear out any leaves or dead wood from shrubberies.

PROTECTION.—Remove when weather permits. Take away haybands from stems.

PRUNING.—Clip holly, privet, Portugal laurel, common laurel, etc. Prune after flowering by cutting back straggling branches of forsythia, chimonanthus, cydonia, hammamelis and prunus.

PLANTING.—Finish by the middle of the month. Do not transplant evergreen shrubs now. Stake and tie up newly planted shrubs. Give a mulch of well-rotted manure or peat moss litter.

RHODODENDRONS AND AZALEAS.—Give a slight surface mulch of a light leafy compost containing old mushroom manure and well decayed leaf mould.

ROCK GARDEN.

GENERAL.—Remove protection, reset stones, stir the surface. Remove any leaves killed by frost. Give a top-dressing, compost according to the requirements of the plants.

FLOWERS UNDER GLASS.

ABUTILON.—Pot on into 4in. pots.

ANNUALS.—Give final potting to spring-flowering annuals. Grow seedling hardy annuals sturdily. Keep half-hardy annuals fairly dry. Make further sowings in a cool house. Prick off seedlings in early stages.

BEDDING PLANTS.—Insert cuttings of all kinds in sandy soil in a warm house or on a hot-bed.

BOUVARDIA AND SOLANUM CAPSICASTRUM.—Pot up when ready.

CANNAS.—Start into growth. Syringe with water. Pot up when grown sufficiently.

CAMELLIAS.—Feed with soot water and liquid manure alternately once every fourteen days.

CARNATIONS.—Re-pot malmaisons into 6in. pots. Pot up struck cuttings. Never pot deeply. Keep down aphis and mildew. Feed with good fertiliser.

CHRYSANTHEMUMS.—Pinch points when plants are 6 inches high.

CINERARIAS AND PRIMULAS.—Sow seed of dwarf cineraria. Stake flowering cineraria. Sow P. stellata and P. malacoides in pans of rich compost. Place in warm position.

CYCLAMEN.—After flowering remove to frames. Keep fairly dry.

DAHLIAS.—Start another batch. Start in boxes and pot up young growths when 3ins. long.

GLOXINIAS.—Move into larger pots. Keep the atmosphere close and moist.

HIPPEASTRUMS.—Feed with guano or Clay's Fertiliser when growing well.

HYDRANGEAS.—Give autumn-struck cuttings a larger pot.

LILIUMS.—Feed moderately. Temperature 50°–55°. Fumigate regularly with nicotine compound.

PELARGONIUMS.—Pot up into 3in. pots zonals for winter flowering. Grow in cool atmosphere.

POINSETTIAS.—Give complete rest. Throw under staging and give no water.

ROSES.—Guard against mildew. Syringe with Abol or dust with sulphur to keep down this disease.

SWEET PEAS.—Stake carefully. Move into frames young plants and then plant out at the end of the month.

GENERAL.—Sponge leaves of foliage plants during wet weather to keep down scale, etc. Feed spring-flowering shrubs.

FRUITS AND VEGETABLES UNDER GLASS.

FIGS.—Thin young growths.

MELONS.—Plant on prepared beds. Tie growth up to trellis. Keep atmosphere warm and moist, but ventilate freely on warm days. Pinch points from laterals after the second leaf. Pot on young plants. Grow them rapidly.

PEACHES AND NECTARINES.—Disbud after fruit has set. Remove all growths from the front or back of the present wood. Retain the top growth and those that break at the bottom. Disbud gradually. Syringe again after flowering. Temperature 60°. Prevent a hot, dry atmosphere, which causes an attack of red spider. Thin out peaches on early varieties. Remove only a few at the first thinning.

VINES.—Tie down young shoots. Thin grapes of early varieties. Give higher temperature for flowering vines. Start vines in cold houses.

STRAWBERRIES.—Increase temperature as fruit swells. Discontinue feeding as fruit colours.

CAULIFLOWERS.—Plant out in cold frames or harden off boxes of transplanted seedlings in frames.

CUCUMBERS.—Make another sowing, using ridge varieties. Plant out on prepared beds those in 5in. pots. Syringe and damp down. Temperature, 70°–80°.

CELERIAC.—Sow in gentle heat.

CELERY.—Prick off into boxes.

DWARF BEANS.—Stake if necessary.

LEEKS AND ONIONS.—Grow near the glass. Prick off another batch.

MARROWS.—Pot on young plants. Sow another lot in 3in. pots at the end of the month.

MUSHROOMS.—Make up another bed.

PEAS.—Place boxes in cold frame.

SEAKALE.—Continue to grow a few crowns in darkness in a cool shed.

TOMATOES.—Sow outdoor varieties. Pot on other plants. Use a light compost. Leave room for top-dressing. Keep plants fairly dry. Prick off seedlings into boxes when ready.

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CORRESPONDENCE

OSMANTHUS DELAVAYII.

SIR,—The ground is too wet for me to use spade or trowel, so I take up my pen, but with hesitation, for I am bold enough to criticise you, Mr. Editor, and also another high authority, but I do so very gently I hope. In one of your lucid articles recently you loudly praised Osmanthus Delavayii, and rightly so, for who could see this delightful shrub and not want to possess and grow it? But you also express some surprise and disappointment that your previous advice to grow it had not resulted in it being a more common object in gardens.

A short time ago several correspondents expressed their opinions on the use of Lonicera nitida as a hedge plant in the columns of THE GARDEN, and Sir Herbert Maxwell wrote and said, "Why grow L. nitida, why not make your hedge of O. Delavayii instead?" Now, I never see any remarks from Monreith that I do not read and grasp, for they constitute the gospel of gardeners, but when I read that, I realised more than ever the gulf between Monreith and many of us. How many of us could afford to take a couple of hundred cuttings from our osmanthus and strike them for a hedge, and how few of us would not, I fear, have joints too stiff to use the shears by the time such hedge needed clipping? We all desire protecting holly hedges 7ft. or 8ft. high round our gardens, and inner screens of neat yew to shelter our osmanthus and a hundred other treasures; we imagine groups of Viburnum fragrans, tall mezereum or a corner of desfontainea, but, Mr. Editor, these and so many choice subjects are all governed by the enemy and victor of us all, Old Father Time. The slow growth of so many of them is too often overlooked in print, in practice we soon realise it.

The other day in my garden I moved a specimen of Azalea amœna. It was 3ft. high and over 4ft. through, but my pride in it was much damped by the thought that it was no mean bush when I had previously planted it twenty-five years ago! No, sir, time is the essence of all these things, and the pen must not forget it. It all reminds me of the story of the enquirer who wrote to one of our best-known papers and asked the editor for his advice on "How to grow walnuts?" The editor, with that wisdom which is inseparable from your high calling, made the brief reply, "Get your grandfather to plant them."—ERNEST BALLARD, *Colwall.*

CROP ROTATION.

SIR,—Mr. Beckett's article on "Rotation of Crops" is an interesting one, and suggests the possibility of a series of articles on the subject. Rotation of cropping is no new thing, it has been practised from Anglo-Saxon time, and been modified to accommodate every new introduction. Experimental work carried on anywhere is founded on the Rothamsted series of field experiments, which date back to 1840, and are still being carried on and extended. Every thoughtful gardener has his own system, borrowed or worked out, to suit his own soil conditions and the plants which he has to grow in that soil. During the war there was an immense increase in the number of vegetable growers. The necessity for increasing the output of food being the principal incentive. Many of those growers found it profitable or agreeable, and have continued the practice. It is mainly among those amateur growers that the necessity for studying this practice exists. That there is a need for it is very certain. You have only to examine the gardens of agricultural labourers to see it for yourself. In those gardens potatoes after potatoes and little else is the invariable rotation, and it is this want of system that is largely responsible for perpetuating wart-disease, leaf-roll, mosaic and the other ills to which the potato plant is subject. Mr. Beckett has named four years as the minimum period for the repetition of any individual crop. For some things it might well be lengthened, unless special precautions (such as periodical liming) are taken to eliminate the risk of soil infection. As an illustration of this it is commonly accepted that a five years' rotation is too short a period to eliminate the fungus which causes club-root or finger-and-toe in turnips and other members of the cabbage family, and that is not the only trouble to which highly manured and cultivated ground is subject. It would be interesting if a series of notes on garden crop rotation could be published giving details regarding soil, rainfall, etc., as well as any reasons that may have led the cultivator to depart from common practice. I give the rotation as practised in my own garden. It is good loam (of varying depth) on a subsoil mainly gravel, and having been at one time the bed of a river the depth of soil varies considerably. Underground water can be found in almost any part by digging a few feet into the gravel. The average annual rainfall is in the neighbourhood of 28ins., though for the last two years it has been almost 36ins. My rotation is as follows: First year.—Summer brassica plants. Winter fallow. Second year.—Potatoes (early), followed by winter brassica. Third year.—Peas, beans, celery, onions, carrots and other deep-rooted vegetables. Winter fallow. Fourth year.—Strawberries planted in spring. Fifth year.—Strawberries. Sixth year.—Strawberries trenched down in autumn and followed by winter fallow. My garden lies fairly low, forming part of an alluvial flat formed by a shifting river, and is very subject to early and late white frosts, so winter catch cropping can seldom be resorted to.—WILLIAM LOW, *Balmakewan, Montrose.*

[We should be glad to receive other notes on rotation from our readers.—ED.]

ST. BRIGID ANEMONES FROM SEED.

SIR,—In your February 14th issue I was much interested in the illustration of Anemones St. Brigid sent by D. Bucknall, Co. Cork, who enquires if any of your readers have had such fine results. I have been growing St. Brigids from seed for over twenty years with very gratifying results, and I often wonder why one of our finest spring flowers is so much neglected, at least in Scotland. Possibly it is because the intending grower has started away with a hundred or two of tubers, which invariably mean a rather "blanky" bed or border and also smaller flowers. I sow the seed thinly in boxes about the second week in April in a little heat, and afterwards prick out in cold frames, allowing them about 3ins. each way, and so have good plants ready for their permanent quarters by the end of August or beginning of September. It is an advantage to get them out early so that they may get well established before frost sets in. They are not too particular as regards exposure, but if one can give them a southern or western aspect all the better. A fairly open soil enriched with some good old cow manure will suit their requirements. Allow 6ins. or 7ins. between the plants and a foot between the lines. At the present time I have a long border looking very promising without a single blank. In the first lot of plants, raised from bought-in seed, purples and blues usually predominate, but this can be remedied when selecting your flowers for seed for the following year. I usually tie a short piece of raffia round the stem of the largest and best coloured flowers and afterwards gather the seed daily when it is almost at the blowing-off stage. When the plants have finished flowering they are consigned to the rubbish heap, as I consider I have got the best of the flowers out of them.—C. GLASS, *Cardross, Dumbartonshire.*

PLANT LABELS.

SIR,—I regret that, in at least one respect, I have been the means of misleading those who honoured me by reading a volume, probably superfluous, which I added recently to the abundant literature on horticulture. It contained a recommendation of holly as excellent material for wooden plant labels, and this I thought was sure to be right, seeing that it was the last of many wrinkles given me by my old schoolfellow, the late H. J. Elwes. A large log of holly which happened to be in the woodyard was promptly sliced up into labels of various sizes. Their smooth white surface was easily inscribed with pencil without any need for paint, and in durability holly is far superior to deal; but that, alas! has proved to be its only virtue. When exposed to the weather these labels rapidly become darkly discoloured, rendering the inscription on them illegible; and a thin wash of white paint, such as suffices on deal labels, soon washes off the hard, smooth holly wood. Correspondents having complained to me about this, I can but offer a sincere apology for having misled them. I may add that the best wooden labels I have ever used are those painted green, as supplied by Messrs. W. Wood and Sons, Limited, Taplow, Bucks. The green paint takes and keeps lettering by a lead pencil better than white paint, and the colour renders them desirably inconspicuous in a border.—HERBERT MAXWELL, *Monreith.*

ACÆNAS IN NEW ZEALAND.

SIR,—We have a goodly collection of these native to New Zealand, and some are very beautiful when in bloom. A. microphylla is the gem among them, bearing globular heads of bright red bristles. I have seen masses of this up in the mountains creeping along the seldom-used stony roads with its bronzy beautiful foliage carrying hundreds of its bright red heads 2ins. above. This is the only one that does not have barbs to its spines. A. Sanguisorbæ is a very common one, with browny coloured heads and browny green foliage, dreaded by New Zealanders because of its barbed propagating habits. When the heads are ripe they are easily detached and cling to any passing object. The sheep farmers of the "Bidi Bidi," as it is locally called, usually have a race for the wool. The farmer trying to get his sheep shorn before the Bidi Bidi gets hold and spoils it, and not only spoils the wool but sometimes blinds the sheep by tangling up the wool by the eyes while they are feeding.

There are other sorts of acæna growing in spikes instead of globular heads, also brown with the usual pretty foliage. These are not so deadly and grow down to sea level. If anyone would care to try seeds of these or other New Zealand alpines, I would be pleased to give them to anyone who asks if they communicate direct with me.—(Mrs.) M. POULTON, *Shirley, Christchurch, New Zealand.*

[We trust that our readers will avail themselves of the very kind offer of our New Zealand correspondent. Once established in this country many of the New Zealand alpines (a number of which are very fine plants) should do well in this country. One of the chief difficulties in the way is the length of the journey from New Zealand to this side, but we hope that if any readers obtain seeds from Mrs. M. Poulton they will meet with success.—ED.]

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NOTES FROM CONTRIBUTORS

VARIETIES OF THE BLACK CURRANT.

THE fruit planting season is now in full swing. Many factors play their part in the results obtained. Not the least important of these is a selection of suitable varieties. I am certain that every other factor will be rendered useless if an unsuitable selection is made. There are, for instance several black currant varieties which have had their day and should be withdrawn. To plant them is to plant disappointment. I have observed the behaviour of varieties of this fruit very carefully and consider the following to be quite reliable :

Boskoop Giant.—The largest black currant in cultivation. A very heavy cropper, having berries of excellent flavour. Commercial growers find Boskoop Giant valuable because the fruit travels so well. The big bud mite is rather partial to this variety, but its attack can be defeated by the removal of infected buds as soon as they are noticed.

Seabrook Black.—A very regular bearer in sheltered positions. Liable to " run off " a little in exposed places. The berries bear the shock of transport well, are of attractive appearance and possess a pleasant flavour. Seabrook Black has strong mite-resisting powers.

Black Champion.—One can truly say of this variety that it never fails. For years it has been regarded by growers all over the land as their most reliable cropper. The berries are of average size and the bushes of average cropping capacity. It is only just to say that the two varieties previously named bear heavier crops. Black Champion falls into the category of esteem because of its regularity.

Edina.—I am most favourably impressed by this comparatively new sort. It crops well and the fruit possesses all the attributes of a good black currant. The tendency to reversion is very slight and I have not observed any signs of big bud.

Laxton's Tinker.—This is a variety of recent introduction, and it is worthy of the firm whose name it bears. Prolific crops of large berries are produced, and those who pride themselves as judges of flavour pronounce it excellent. The variety makes more vigorous growth on light soil than any which have come under my observation.

Daniel's September Black.—A late variety and a good cropper. The fruit packs well and will keep for some time after removal from the bushes. I had berries of this variety last year during the first week of October. They had lost none of that piquant flavour which is so acceptable in black currants.—GEORGE F. COPLEY.

THE GIBRALTAR CANDYTUFT.

IT is the opinion of the writer that Iberis gibraltarica, the Gibraltar candytuft, is not nearly so plentiful as it was at one time. This is doubtless due to the fact that in many parts of the country it is not so hardy as is to be desired. This is extremely unfortunate, for a mass of this plant covered with its large heads of lilac flowers is a conspicuous feature of the rock garden. It will grow as much as 2ft. across, and those who know the appearance of the ordinary perennial white candytuft can form a good idea of the effect of a plant of this size covered with big heads of soft lilac flowers. It is easily raised from seeds sown and treated in the same way as those of hardier perennials, and, as a rule, small young plants stand the winter much better than large old ones. It may also be propagated by cuttings, so that those who live in what may be called " the debatable land " between severe and mild climates may be able to keep a small stock in a cold frame to replace any losses. Even in districts not generally reputed mild the writer has had plants which have survived for two or three years. It is well to lay stress upon the want of absolute hardiness, so that no one may be induced to purchase I. gibraltarica who owns a garden where the winters and springs are of a severe nature, where, certainly, the unhappy gardener would be sure to have to deplore the unwelcome demise of a pretty and otherwise valuable candytuft. A word may be added to suggest the frequent cutting back of old plants to maintain them in good condition and of a suitable size and form.—S. ARNOTT.

RHODODENDRON PRÆCOX.

THE subject of this note is one of the earliest rhododendrons to flower. In sheltered spots its delicate pale purple blossoms begin to expand in early February, but are, unfortunately, liable to be injured by frost. It is not unusual for a bush laden with opening buds to be entirely spoilt by one night's frost. R. præcox is worth a place in the cool greenhouse, where its flowers retain their full beauty for several weeks. As the photograph (taken on February 10th of shoots cut and placed indoors the day before) shows, R. præcox is an evergreen, and the flowers are produced, usually in threes, from buds clustered at the tips of the shoots. It is of hybrid origin, having been raised as the result of a cross between RR. ciliatum and dahuricum.—N. K. G.

ONE OF THE EARLIEST FLOWERING RHODODENDRONS, R. PRÆCOX.

THLASPI STYLOSUM

IT is many years since, attracted by the lure of possessing a winter-blooming dwarf candytuft which I had seen in an ardent amateur's garden, that I became the possessor of a packet of seeds of what was then known as Iberis stylosa. It has been called in later days Noccæa stylosa, and more recently it has received the designation of Thlaspi stylosum. Probably the last is correct.

It seems a quiet little plant to have acquired so many names, but so long as he receives the flower he wants the grower will generally be content to allow the botanists to settle their own disputes and will enjoy the little lilac flowers T. stylosum produces, often all through the winter, and certainly as soon as we have a few days of sunshine very early in the year. It is a tiny plant, only an inch or two high, with small, pale lilac flowers. " Not of much consequence ! " will be the verdict of the many, but its early-flowering appeals to all outdoor growers of alpine flowers.

It is easily raised from seeds, which is as well, as it is not too perennial and sometimes departs this life. Fortunately, seeds germinate well in sandy soil, and a similar soil and plenty of sun suits T. stylosum well when in the rock garden. Far from showy, it is yet highly attractive.—S. A.

CLEARING THE SOIL OF PESTS.

AS all gardeners know, numerous grubs and caterpillars that damage crops spend a good deal of their time underground. The pests may not go down to any great depth, but they are out of sight, and the only evidence of their presence is to be found in the damage that they do. I have found that a very effectual way of clearing ground of almost any grubs that lurk in the soil is as follows : Get about a quarter of a pound of soft soap, or the same amount of any ordinary washing soap will do as well. Boil up a quart of water, and in this dissolve the soap. When all trace of the soap has disappeared, add the solution to a tub containing four gallons of cold water.

Now take a watering-pot with a sprinkler attached and apply the mixture to the ground. Treat the ground in small sections, watching closely all the time. Almost at once the pests come up, and these should be collected and destroyed without delay. It is important not to give the grubs a chance to retreat below the surface again. Large numbers of wireworms and many other kinds of pests are easily captured in this simple way. It does not matter much whether there are growing plants on the ground, as the solution does no harm to foliage.—S. LEONARD BASTIN, *Bournemouth.*

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SEQUOIA GIGANTEA

A FEW weeks ago I happened to mention, in talking about Osmanthus Delavayi, the difficulty of explaining a plant's popularity. My attention has been drawn to the speed with which Sequoia gigantea, or the Wellingtonia, spread through the country.

The history of the discovery of these trees is so well known that repetition would be superfluous, but the reasons that underly its immediate popularity are interesting. The first importation of seed was in 1853, by Lobb. His description of the tree, which, by the way, was not the first, caused a great sensation and there were notes about it in practically every paper in England. It is certain that no tree has ever caused such a sensation.

Lindley waxed enthusiastic over it in the *Gardeners' Chronicle*. He ends his panegyric by saying "Wellington stands as high above his contemporaries as the Californian tree above all the surrounding forests. Let it then bear henceforth the name of Wellingtonia gigantea. Emperors and kings and princes have their plants, and we must not forget to place in the highest rank among them our own great warrior." On further examination it was found that it was not a new genus, but related to Sequoia sempervirens, so the name Wellingtonia does not stand.

This was the merest whisper of a summer breeze to what followed. Pæans of praise were raised, the age and size of the trees increased almost daily, while they were found exceedingly useful in the pulpit for the sake of comparing Biblical dates. Lecturers considered its discovery as manna from Heaven. One lecturer at the time, after dilating upon the evils of the Californian gold rush and the Great Salt Lake, around which swarmed a great Mormon population, "under the rule of that licentious potentate, Mr. Brigham Young," went on to describe in most graphic terms trees of 400ft. and 500ft. in height. He said that the interior of one of these trees was of sufficient area to contain all the wives of Brigham Young and all the husbands of Lola Montes. Needless to say the lecturer discanted at length upon Biblical parallels and then ended "among great and prolonged applause." This is just a sample of what must have been almost a weekly occurrence during the winters of 1854 and 1855.

The only person who was not carried away was the famous American botanist, Asa Gray. It is true that in a lecture in 1872 he said, that "no account and no photographic representation of either species of the far-famed Sequoia trees gives any adequate impression of their singular majesty—still less of their beauty," but he threw cold water on the 4,000 and more years which was supposed to be the age of some of these giants. Later in the same lecture he said, "So far as we can judge from the actual counting of the layers of several trees, no Sequoia now alive can much overdate the Christian era."

Meanwhile, Messrs. Veitch of Chelsea and Exeter were steadily importing further consignments of seed and were advertising the plant. The first advertisement I can find is on February 25th, 1854, in which they say they "have much pleasure in stating that their seeds of the above magnificent tree are vegetating satisfactorily. They therefore hope to be able to send out well established seedling plants during the ensuing summer and autumn. They are now taking orders for them at the following prices:—For a single plant 2 guineas, for 4 plants 6 guineas." and so on. No doubt this original stock was strictly limited, because there are not many trees of this age in the country. There must have been numerous further importations, for in Messrs. Veitch's catalogue of 1867–68, they are quoted from 2s. 6d. to 42s. each, but by this time other nurserymen had received consignments of seed, for 1860–67 was about the top of the Sequoia gigantea boom. I can find no advertisement of them after 1876, nor can I hear of any trees being planted after that date. I know that at the present moment seed is entirely unobtainable, for the trees cannot be felled; while the cones are small, and, of course, at a great height, and so the seed cannot be gathered on the ground.

I had no idea what an enormous amount of interest was taken in the Sequoia until I began to look into the matter. The intense interest taken by expert and layman, and the publicity given it by all and sundry, certainly explain its popularity. The world is more sophisticated nowadays—particularly gardeners.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR SPRING NUMBER WILL BE:

A SELECTION OF PANSIES AND VIOLAS, by Norman Lambert

PLANTING LILIES, by J. Coutts.

ANEMONES FOR BEDS AND BORDERS.

NOTES ON THE CULTIVATION OF GLADIOLI, by Major Churcher

SEED SOWING, by Edwin Beckett.

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THE CHARM OF THE MINIATURE DAFFODILS

BY EDWARD CAHEN.

SO MUCH HAS BEEN WRITTEN ABOUT THE HYBRIDISATION OF DAFFODILS AND THE LARGE BLOOMS THAT HAVE BEEN EVOLVED THAT THE MINIATURE SPECIES AND VARIETIES HAVE PERHAPS BEEN RELEGATED TO THE BACKGROUND.

WHAT is the chief distinction between the professional gardener and the amateur? Is it the preference for size shown by the former? The professional never seems to be satisfied till he has produced a bloom or a vegetable larger than his rival. In no other group of flowers is this more noticeable than among the daffodils. Such giant varieties as King Alfred and Madame de Graaff still hold the field as prime favourites among professional gardeners. Many amateurs and especially those who possess rock gardens, are turning their attention on the other hand to the miniature daffodils; thus opening up a field hitherto scarcely explored, where great variety of form, elegance and daintiness replace the grandeur of the larger types.

Plant hybridists, too, finding that so much has already been done to improve the larger daffodils, are beginnning to take an interest in these miniature species. By selecting suitable parents they have a vision of producing a daffodil with a closed trumpet, which will bear some resemblance to the flowers of the larger heaths.

In the ancient Greek legends we read how Persephone was picking narcissi when she was carried away by Pluto to become the Queen of the Shades. It is, therefore, not surprising to find that these charming little daffodils are for the most part to be found growing wild in many parts of Europe. The hedgerows and woods of Southern England produce a little trumpet daffodil only a few inches high which in itself is a "thing of beauty and a joy for ever."

The smallest of all the trumpet daffodils, Narcissus minimus, seldom rises more than 3ins. above the soil, but produces a trumpet of perfect shape.

NARCISSUS TRIANDRUS CALATHINUS.

Other miniature trumpets are N. minor, now very scarce; also N. nanus and Lobularis nanus, which is often sold for it, though it may be reckoned greatly inferior.

Fascinating as these tiny trumpet daffodils are they are really only miniatures of the larger trumpets, and it is not till we come to the distinctive species that we find blooms of really striking form. Take the genus Bulbocodium, for instance, the Hoop Petticoat or Medusa's Trumpet, as they are variously called in English. Several varieties are to be had, each with its own individual charm of form or colour. The large sulphur Hoop Petticoat (Bulbocodium citrinus), a native of the Pyrenees, where so many of our choice rock plants come from, is a fairy-like daffodil of a citron yellow colour. This consists almost entirely of trumpet as the perianth is reduced to the smallest dimensions. Its segments form a little star at the base of the trumpet.

Then there is the yellow Hoop Petticoat (B. conspicuus). It has flowers like those of citrinus, but of a rich golden yellow and rush-like foliage, which is very slender and graceful. This springs up soon after the bulbs are planted and grows to its full extent, some 6ins., before the buds of the little star-shaped flowers appear.

A very early-flowering variety is B. monophyllus. This is a native of North Africa and has pure paper-white flowers with bright yellow stamens. In a warm situation on the rockery, sheltered from the winds, this little gem will open its flowers soon after Christmas is past. Another group has the segments of the perianth reflexed like the flowers of a cyclamen. In this group there is much of interest. Narcissus cyclamineus, which takes its name from the close resemblance its flowers bear to those of the cyclamen, has a curious history. In French books of the early seventeenth century you will find figures of this little daffodil. It then appears to have been lost for two or three hundred years. It was discovered again by Mr. A. W. Tait of Oporto to whom we owe its re-introduction to our gardens. The flowers are of a rich yellow, the trumpet is long and so narrow that it might be said to be tubular. The segments of the perianth of a slightly greenish-yellow colour are of equal length, slender and reflexed. On the mountains of Spain and Portugal there grows another member of this family, discovered there by the late Mr. Peter Barr. In the hard gritty soil, often emerging from some fissure in the granite and slate rocks, he found Triandrus albus, with its elegant, creamy-white flowers, which have won for it the entrancing name of "Angel's Tears."

The perianth is reflexed but much broader than in cyclamineus or the bulbocodiums, and each segment has a fascinating little twist resembling the blades of an aeroplane propeller. The trumpet is slightly globular, a point which has been eagerly seized upon by the hybridist in pursuit of his vision of a heath-flowered daffodil. From this little cup protrudes the slender pistil, and often the stamens as well, in prettiest possible manner. Each stem bears two of these elegant little blossoms.

Mr. Peter Barr was also responsible for the discovery of another member of this division, Triandrus calathinus. This he found at some personal risk on the Isle of Glénan in Brittany.

Unfortunately, however, the sea has now washed away all trace of this rare daffodil from its native haunts. The flowers are produced, two or three together, in drooping clusters. The goblet-shaped crown is very prettily fluted at the edge.

Even a miniature polyanthus narcissus (caniculatus) has been discovered. This is a native of the sunny south, coming from Mentone and is on this account only for

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very sheltered sunny positions on the rockery. It grows about 6ins. above the ground, bearing heads of three or four flowers with white reflexed perianth and bright golden yellow cups. This possesses the additional charm of being sweet scented. Grown in pans in the cold greenhouse the buds of many of the miniature daffodils are already showing before the turn of the year. The enthusiast thus has the prolonged pleasure of watching them swell day by day until the flowers appear.

Triandrus is particularly interesting in in this respect. At first perfectly straight, at the end of the stem the bud is pushed up until the full length, or nearly so, of the stem is attained. It then bends over and the buds begin to emerge from their protecting sheath. Slowly each one swells and turns whiter and whiter day by day until they closely resemble a small child's top or a plumb bob. Suddenly the tension on the points of the perianth enclosing the cup becomes too much for them, they spring apart, slowly reflexing and twisting until the flower attains its final form. There is, however, no necessity to grow them in pans under glass, though they lend themselves admirably to greenhouse decoration. Nearly all of them are perfectly hardy and if left to themselves when once planted in a sheltered position on the rockery they will become established and increase rapidly, well repaying the initial cost and trouble in obtaining them.

Growing so close to the ground the flowers are apt to get spoilt by the earth splashing up during a shower. It is therefore advisable to allow some close-growing evergreen plant to creep over the bulbs. They are thus protected during winter from excessive moisture and when the flowers open they are not spoiled. For this purpose many of the thymes are very suitable.

Most of the miniature daffodils, which find their way on to the market are collected from their wild haunts in the countries where they grow. Owing to their diminutive size they would never be found again were they allowed to die down. Accordingly they are lifted when in flower and it is owing to this somewhat drastic treatment that the bulbs do not always flower the first year. This also accounts for the high mortality among them.

N. CYCLAMINEUS NATURALISED IN A WOOD.

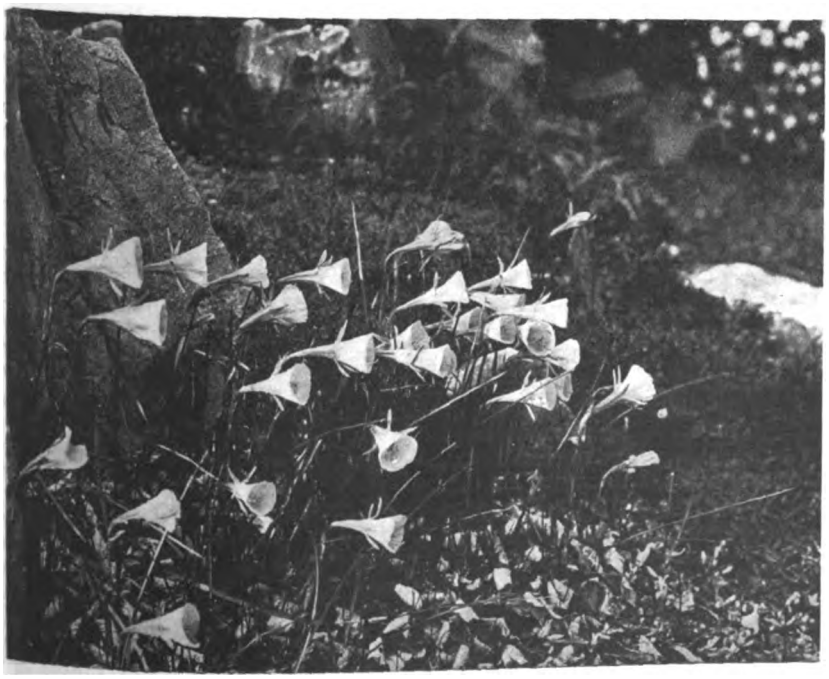
The miniature daffodils, and more especially triandrus, have proved an excellent subject for the hybridist's skill. Any number of hybrids have already been raised by crossing them with suitably chosen trumpets and other members of the narcissus family. Triandrus, indeed, is such an apt subject for hybridisation that Nature has forestalled the hybridist. A cross between triandrus and a wild trumpet daffodil has been found growing wild in Spain and has therefore received the name "Queen of Spain."

The aim of the hybridist's art, however, is twofold—to produce new forms, combining the distinctive features of both parents, and, secondly, to improve on those forms already existing.

To attain the first of these objects triandrus has chiefly been utilised as one parent. Such flowers as the jonquil and the polyanthus narcissus have been chosen as the other. In this way scent has been introduced into a strain which has hitherto had none. Perhaps one of the most beautiful of these hybrids was obtained by crossing triandrus with a polyanthus narcissus. This produces a head of from eight to a dozen pendent, pure white flowers. On this account it has been aptly named "Silver Chimes."

Turning now to the second aim of the hybridist, namely, the improvement of already existing forms, it has been found possible to increase the size of the naturally occurring flowers without depriving them of their exquisite form and daintiness.

By a suitable choice of a trumpet as one parent, and by taking cyclamineus as the other, the actual size of the flower has been increased from the somewhat inconspicuous 1¾in. of Nature's bloom to 2¼in. in the hybrid without altering the essential proportions of tube to perianth. The tube still retains its beautiful frilled edge, though it is somewhat less tubular. The perianth is slightly less reflexed than in Nature, but this rather adds to the distinction of the bloom than otherwise. The golden yellow colour is greatly improved, being more intense and richer. In the rock garden or naturalised in the woodland, colonies of these miniature daffodils are one of the charms of spring. Their slender gracefulness and dainty form



ONE OF THE HOOP PETTICOAT DAFFODILS, N. BULBOCODIUM CITRINUS.

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have a fascination possessed by few other flowers, In a sheltered position they will establish themselves and increase.

Perhaps a few words should be added in regard to cost. Often this is a matter for serious consideration with the more humble amateurs of restricted means. And is it not just those who long for the rarer and more costly varieties? A comparison of the prices asked for these miniature daffodils in some half dozen catalogues reveals the fact that we are dealing with a commodity of fixed value.

Some of the Hoop Petticoat daffodils are quite cheap costing from 1s. 4d. to 1s. 9d. a dozen. Twelve bulbs of the dainty cyclamineus can be had for 4s. and the same quantity of N. minimus for a trifle more. N. nanus, however, presumably owing to its rarity, costs 1s. a bulb. Its substitute, Lobularis nanus, on the other hand is only 1s. for a dozen bulbs. "Angels' Tears" are cheap at 1s. 6d. a dozen, unless the variety calathinus is desired, when this sum must be expended for a single bulb.

ROSES AND ROSE PRUNING

SUCCESSFUL ROSE GROWING DEPENDS SO MUCH ON PRUNING THAT THIS ARTICLE MAY BE A TIMELY REMINDER OF THIS IMPORTANT GARDENING OPERATION.

IT often used to be said, partly in jest but largely in earnest, that no amateur should thin his own grapes or prune his own roses. The underlying idea being that there was a distinct danger that he would not sufficiently harden his heart to thin or prune with the necessary severity to produce a successful crop. While this remains as true in principle to-day as before, there are no serious reasons why anyone who approaches the matter in a right spirit may not prune as successfully as the most accomplished expert.

Before commencing operations, it is most essential to have clear ideas as to the nature of the types of roses that are grown and the objects in view. Generally it may be laid down that the objects of pruning roses are to obtain more and better blooms for as many seasons as possible. This suggests that the individual rose bushes are not expected to continue perpetually, and when one considers for a moment it is seen that this is so. For, while the garden rose is a shrub, it is not as other shrubs are, which, when properly planted and given ordinary attention, may be relied upon to continue as useful subjects for very many years. Ordinarily the roses in our gardens are not raised from seeds or even cuttings, but have their origin in a bud taken from a stock plant and attached to another individual. Although the pruner, naturally, has an eye to its ultimate shape, the form of the bush is, to a certain extent, of minor importance. The chief duty of a rose is to produce bloom.

The time of pruning is an important matter, and, while this will vary slightly according to local conditions, it will be found that the middle of March is the best time to prune what may be termed general utility roses—that is, those grown for garden decoration and for supplying cut bloom. Often, following a mild winter such as we have experienced this season, at the time mentioned many roses will be in leaf, and flower buds are evident. It is at such times that the inexperienced and tender-hearted amateur goes astray. It does seem a pity to destroy so much potential bloom, and there is the fear that the hard pruning of roses which are evidently full of sap will cause bleeding which must have a harmful if not deadly effect on the bushes. But no such fears need be entertained. It has been found, over and over again, that while roses which have been pruned when in almost full leaf do bleed profusely, no harm has resulted and, on the contrary, some expert growers are of the decided opinion that the loss of sap is beneficial to bushes that are necessarily too soft, in that the bleeding tends to harden them, and better blooms are the result. For a few days after having been pruned under these conditions the roses will bleed freely, but it soon ceases. If one were guided by the heart and not the head and left roses unpruned because they had grown so much by pruning time, a grave risk of loss through spring frosts would result. On the other hand, there is danger in pruning at too early a date during mild winters, because this would induce early growth of the basal buds and if these are injured by late frosts the season's bloom is lost and probably the bushes spoilt beyond recovery.

The middle of March is also a very suitable time for pruning dwarf and standard hybrid teas and perpetuals and all the Pernetiana roses. The noisette and real tea roses, which are more delicate and tender, should be left at least a fortnight later and, in cold districts, the middle of April will not be too late. The real pruning of all climbing roses should be done during late summer and autumn after they have finished flowering.

The above are the general types, and in addition there are a number of special kinds, mostly species, which often require particular treatment if they are to display their full beauty. The Banksian roses require scarcely any pruning at all. All that is needed is to cut away the old flower trusses and thin out any weakly shoots: this is best done in April, but generally they should be allowed to grow at will, especially for the first few years. Any pruning needed by the China roses should be done towards the end of March, but these must be lightly handled, and the chief pruning may well consist in thinning them a little after they have flowered. The same remarks apply to the moss roses, Penzance briars and Rosa rugosa. The last-named is most effective when given plenty of space and allowed to grow at will.

The dwarf polyantha roses, such as Mrs. W. H. Cutbush, Ellen Poulsen and Jessie, should be pruned as hard as possible at about the middle of March. They will then make robust little shoots which will continue to flower beautifully until almost Christmas. Fortune's Yellow simply needs to have the flowering shoots cut hard back to the main stems immediately their beauty is past and the resultant shoots thinned out in the following spring.

Unless there should be some special reason to the contrary all newly planted roses must be pruned as severely as possible on the first occasion after they have been planted. It may seem a cruel thing to do, and one may wonder where the plants are when the pruning is finished, but the future success of the roses depends on severity of treatment at the first pruning. This is especially necessary with climbing roses, unless they are pot-grown, and by this means they will acquire the habit of producing annually the stout basal shoots which make such a fine display during the flowering season.

With regard to the actual pruning, one must decide as to whether a comparatively few extra fine show blooms are desired or a reasonable number of flowers for general purposes. If the former is the case, the bush or standard must be reduced to fewer shoots and these must be cut closer than for the latter. But in each case the pruned shoot should be cut to a bud pointing outwards and surplus growths should be entirely removed, so that at midsummer and later none of the branches should intercross and they should be far enough apart to allow sun and air to enter the bush. When the pruning is finished there should remain a well balanced bush or standard with the shoots at. as far as possible, equal distances one from another, forming the foundation of a creditable plant which will yield the required quantity of bloom.

Although the use of secateurs is the most convenient and easy, there are objections in their way. Unless the implement is in perfect condition bruising is inevitable, and this, of course, is most harmful to the rose. Unless the shoot to be operated upon is very favourably placed it is often not possible with the secateurs to cut as closely to the bud as is advisable, and consequently a spur is left and this invariably dies back. None of these objections apply to the pruning knife, and if this is of fair size and kept sharp by far the best work is done by its use. A small pruning saw, to remove old shoots, is also needed, as also is a pair of easy-fitting gloves, while a kneeling mat is a great convenience.

A. C. BARTLETT.

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NOTES FROM FLORAIRE

BY H. CORREVON.

EVERYONE who has a garden knows the popularity of blue flowers. We may know people who have blue gardens and others who search for blue flowers and leaves, so strong is the love for the colour of the sky. Specially appreciated are the gentians, blue linums and some of the boraginæous plants (omphalodes, myosotis, lithospermums, etc.), which are, generally speaking, of easy culture. We have here at Floraire a special love for lithospermum—particularly for the European species, which are the best of the blue ones. Of blue flowers there is none better than the delicious god flower (Parochetus communis), which is covered with its numerous deep blue flowers during December. It is a pea, but how beautiful it is impossible to describe.

The lithospermums can be, from a cultural point of view, divided into two groups: those which are really herbaceous and grow on flat ground, and those which are shrubby and saxatile and are better grown on walls or in crevices of rocks. The first section are plants growing in thin shade or on half-shady banks on rocky slopes. The type of this group is the beloved L. purpureo-cœruleum, a British plant which grows all over south and middle Europe and even as far east as Persia and Asterabad. It grows under banks and on bushy slopes; and thanks to its stoloniferous character, it spreads rapidly if conditions are suitable. On half-foot stems its flowers make a marvellous head of azure blue shaded with pink and purple. In the garden it likes a half-shady position, and succeeds in all light soils. L. Zollingeri is an Asiatic form of it with paler blue flowers and longer stems.

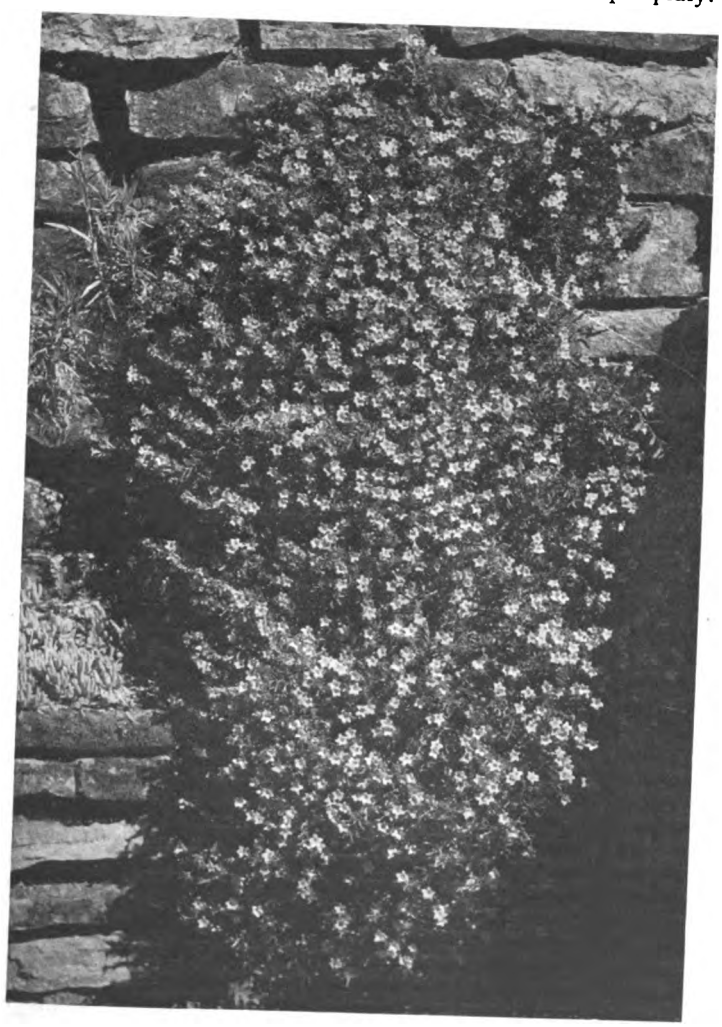
The rare and beautiful L. Gastoni (*Botanical Magazine*, t. 5926) from the western Pyrenees was introduced into gardens through Messrs. Backhouse and Son in 1870. It is seldom seen in gardens now, and is wrongly said to be of difficult growth. Such a reputation is unmerited, as it only wants limestone and a well drained soil. I saw it grown as an ordinary herbaceous border edging and flourishing there as well as the common Omphalodes verna. When planted in suitable situations it spreads through the rockery by means of its stoloniferous roots. It is a bushy plant, with broad, deep green foliage and large pure blue flowers (May to July), which are pink in the bud. The plant must be divided every three years, as it soon makes large bunches of roots. It is found on steep rocky slopes of limestone in the central and west Pyrenees from 3,000ft. to 5,000ft. altitude, always in a well drained position facing east, west or north, but never south. It grows among rank grasses (festuca, bromus, etc.).

L. prostratum is the best known of all, in England at least, where it is very popular. It is a Spanish plant which spreads north along the coast as far as Brest, growing in silicious sandy ground in half-shady situations. Under the pines of the Landes it is a beautiful sight with its large tufts of deep green foliage and its heads of azure blue flowers, which are in bloom all the summer through. Its variety Heavenly Blue is well known and more grown in England than the type. Here, we cannot grow it except in pure peat in semi-shade. Farrer, however, speaks of it as indifferent to the nature of the soil.

The saxatile and shrubby kinds are as follows: L. fruticosum, from the south-west of Europe growing around Marseilles, Aix, Nimes, Montpelier, etc., in the Pyrenees and in the whole Iberian peninsula. This is a lime-loving plant, forming a small shrub 12ins. to 14ins. high, like a poor rosemary with erect branches, furnished with narrow, thin, greyish leaves and bearing in the spring and till July many deep blue flowers; it is of a stoloniferous nature. There are fields of it near Aix-en-Provence and in the whole south-west of France. It requires shelter for the winter, at least at Floraire, and a very sunny situation.

L. graminifolium is perhaps the gem of the genus. I shall always remember the sight I had at the end of June, 1904, when I for the first time saw it on the steep path up Monte Summano in the Venezian Alps; the path was almost covered with enormous tufts of that ideal plant. It was growing along with yellow tufts of Inula ensifolia, with the deep carmine flowers of Linum viscosum, the deep red Serapias longipetala, the leathery leaves of Epimedium alpinum, etc. There the lithospermum formed such broad patches that I could not find one young plant which could be lifted. However, a friend from the town Schio sent me the same autumn a large number of seeds which came up rapidly. This is a dwarf and bushy plant, with silver-grey foliage, narrow, grass-like leaves and a stem of 6ins. to 10ins., bearing large heads of sky blue, tubular flowers, which are light pink or rose in bud. The aspect of the whole plant is charming, and when grown on a wall it is one of the best things to be seen in gardens, flowering the whole summer through and bearing thousands of flowers together. It likes a perpendicular position. Well drained soil or rock suit it well, but a wall is the best position for it. There are two hybrids of it with the L. petræum: L. intermedium (with larger, shorter leaves and deeper blue flowers) and Froebeli, which is rather dwarfer. Both seed well and come true from seed.

L. oleæfolium is a real saxatile plant, growing in a few places in the East Pyrenees between Spain and France. I have seen it on two very dry and sunny facing rocks, where it covers the stone as does Campanula Raineri in the Bergamse Alps. It creeps between the stone fissures and seems to be able to split the hardest rocks. It is very dwarf, not exceeding more than 1in. to 2ins. high, spreading by means of its thick, hard, silver-coloured stolons. The leaves are oval, thick and shining, and are as grey as those of the olive; it bears, the summer through



LARGE AND BEAUTIFUL TUFTS OF THOSPERMUM PROSTRATUM WITH MASSES OF AZURE BLUE FLOWERS.

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masses of azure and rose flowers. It only requires a very sunny position on the wall or in the rockery (south aspect). It is easily propagated from seeds or cuttings.

L. petræum, (Echium, or Moltkia petræa), from Dalmatia and Greece, is a dwarf shrub not exceeding 1ft. high; it has short pale green leaves and abundant heads of blue and pink flowers, which are borne from May to July. There is a rosy pink form brought, I believe, from Greece by our Genevan botanist, E. Boissier. Same cultivation as graminifolium.

L. rosmarinifolium, from the Abruzzes and South Apennines is a delicious rosemary-like shrub with bright green leaves and large flowers of the brightest blue all the winter through. A very sunny position sheltered for the winter is necessary.

All these shrubby and saxatile lithospermums are of easy culture and reproduction, and want sun and dry positions. They are all easily germinated from seeds and can be increased by means of cuttings. With their masses of blue flowers and pale green foliage they give excellent effects in the rockery.

LITHOSPERMUM PETRÆUM - A DWARF SHRUB WHICH WILL GIVE AN EXCELLENT DISPLAY OF FLOWERS IN THE ROCK GARDEN.

SOME CULINARY HERBS WORTH CULTIVATING

IN the majority of gardens the collection of herbs rarely extends beyond the ordinary mint, parsley, sage and thyme, though many other useful plants required in the making of salads, flavouring soups, etc., may be grown to advantage. Such herbs as basil, chervil, chives, fennel, marjoram, purslane, rampion, savory, sorrel and tarragon will flourish on common soil and are easily raised from seeds or cuttings. A dry and sunny position should be chosen for the production of their fragrant qualities, and the best time for making new beds or borders is in the spring, although roots and cuttings may be planted in the autumn. Herbs, when gathered, should be laid out singly on a dry, airy, shaded site for a couple of days before exposing to sunshine. Though it is a common custom to tie them in small bunches when dried, and hang heads downwards, their flavour is best maintained by picking off the leaves and placing them, well dried, into bottles tightly corked, and storing in a dry place. The following are a few hints respecting the cultivation and uses of the various herbs:

SWEET BASIL (Annual). — Used as seasoning for soups, etc.; the leaves and tops have a strong flavour of cloves. The seed should be sown on a hot-bed in April, and the seedlings planted out in a warm border when the summer is so far advanced that there is no longer any danger from frost. The crop is generally ready for gathering in August.

CHERVIL (Annual).—Also known as sweet cicely and myrrh. A favourite old aromatic herb which, though rarely found in an amateur's garden, is very useful for salads and flavouring purposes in the same manner as parsley. If sown in May, the foliage will be ready for use in about six weeks. The seedlings should be thinned to about 6ins. apart, and for a succession of plants another sowing may be made at the beginning of July, with a third sowing about a month later. Only a small quantity of seed should be sown at once, as a few plants will provide a supply of leaves for picking. Plenty of water must be given to secure a good crop.

CHIVES (Perennial).—The properties of this herb are very similar to those of the leek and onion; the leaves are used for flavouring soups and dishes and salads. The bulbs are very useful in spring as a substitute for young onions, and, apart from their utility, chives are very ornamental, throwing up lavender-coloured blooms during the summer, giving a pretty effect and finish to bed or border edge.

FENNEL (Perennial).—The leaves of this strong smelling herb are very useful for flavouring soups, garnishing and in the making of several fish sauces, being regarded as an almost indispensable adjunct to mackerel. Sow during April and May in drills an inch deep, and from 12ins. to 15ins. apart. The plant is so easy to grow and adapted to all soils that it may be cultivated either in the herb bed or in any out of the way corner. As a rule, a bed of fennel will continue in use for years if not allowed to flower and seed. Like mint the plant can be easily forced if potted up in winter and put into moderate heat.

POT MARJORAM (Perennial). — The aromatic leaves are employed, both green and dried for stuffings and seasoning for soups. The best means of propagation is by dividing old plants in March or April, or the seed may be sown in spring or autumn, and the seedlings planted out in a sunny position, 12ins. to 15ins. apart each way.

SWEET-KNOTTED MARJORAM (Annual). —This is considered superior to the perennial variety, being of better flavour, and so easily and quickly grown that seeds sown at the beginning of April will produce plants ready for use by the end of May. Early in June it is a good plan to make another sowing; these two sowings will afford a continuous supply. The seeds should be sown very thinly in drills one foot apart, and the seedlings thinned to about 8ins. apart in the rows.

PURSLANE (Annual). — The young shoots and leaves are used in salads, soups and for pickling. Any light soil will suit it; being succulent it will even thrive in sandy soil. It requires to be sown in April, or when the danger of frost is over, and covered very slightly.

RAMPION (Annual).—The leaves and roots are used in winter salads; the roots also may take the place of radish, having a pleasant nutty flavour. The seeds should be sown at the end of May, in rather light soil, and thinly covered.

SUMMER SAVORY (Annual). — The aromatic tops are used for salads and soups, also for boiling with beans and peas, to which it imparts a nice flavour. Propagated by seed sown during April.

SORREL (Perennial).—Used to impart an acid flavour to salads. Served also as a separate dish, or mingled with spinach, and as an ingredient in soups and sauces. Grows freely in any good garden soil, and is increased by dividing the roots in spring. They should be planted in rows 15ins. to 18ins. apart, and the flower stems cut down directly they appear. Only a few leaves from each plant should be gathered at a time.

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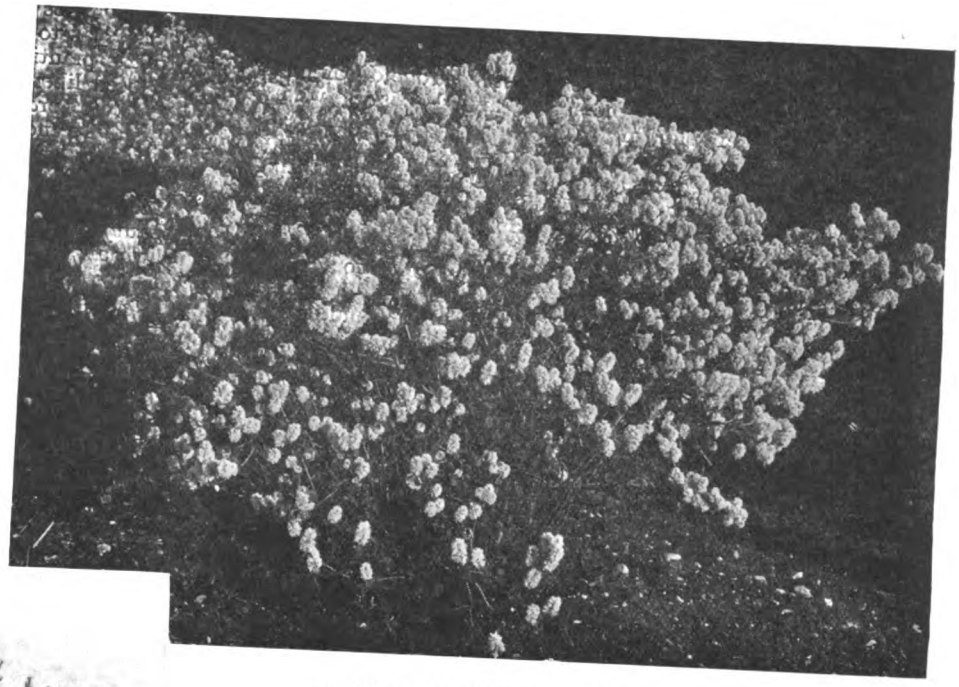
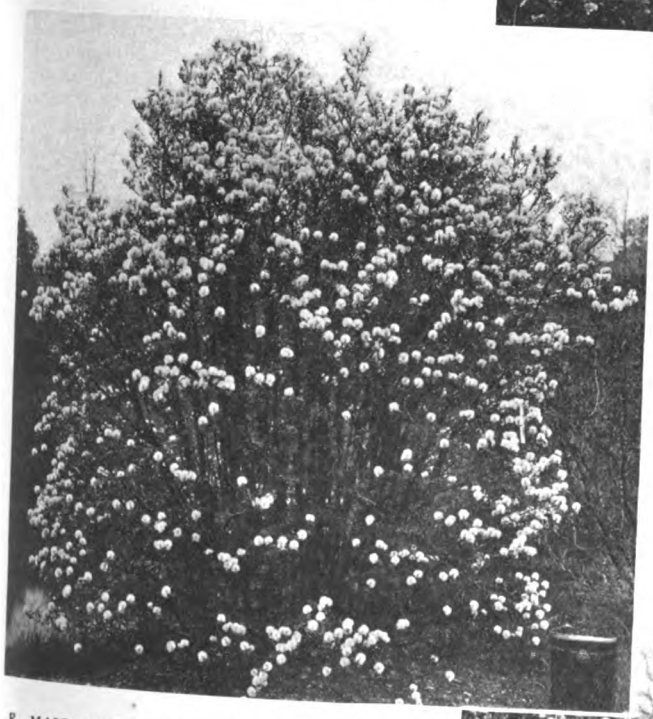
FOTHERGILLAS

WHY are the fothergillas so little known in English gardens to-day? So long ago as 1765 one species (F. Gardeni) was in cultivation in England, and in 1780 a second species, now known as F. major, was growing there. These are figured in the *Botanical Magazine* for 1810 (tt. 1341, 1342). The genus itself commemorates an old-time English worthy, one Dr. John Fothergill, who in the eighteenth century had a garden at Stratford-le-Bow famous for its collection of American plants.

Fothergillas are purely American shrubs, being native of the Alleghany Mountains and adjacent parts of the south-eastern United States. Three species are now recognised, though the differences between two of them (F. major and F. monticola) are admittedly slight. F. Gardeni, the first known, is really the poor relation of the group. All three



A COOL SITUATION SUITS F. MONTICOLA.



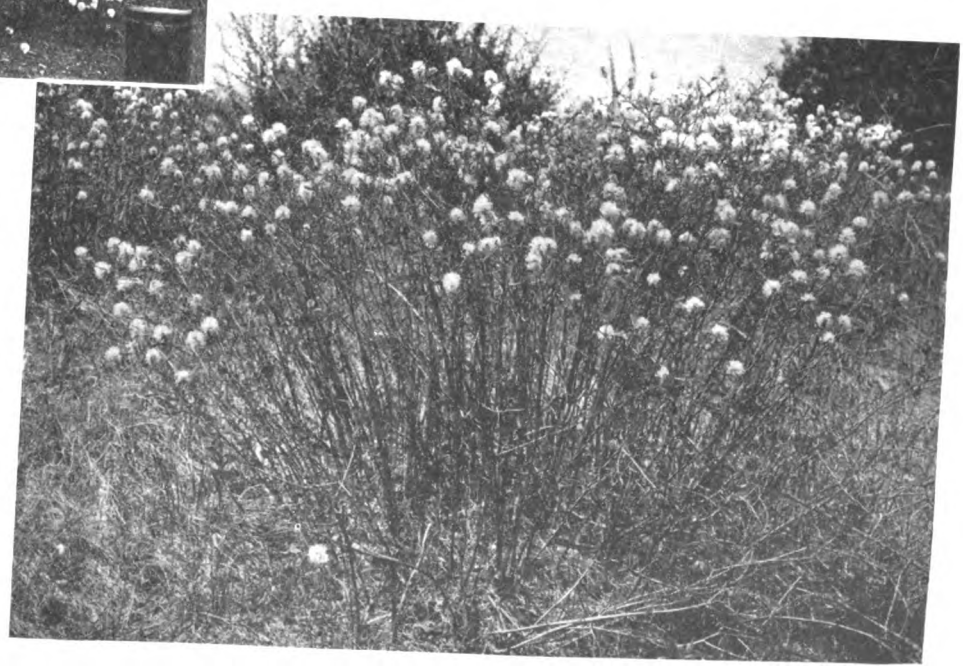
F. MAJOR, OF STURDY COMPACT HABIT.

are very hardy shrubs, sending up freely erect shoots from the base and branching plenteously form dense bushes. They are relatives of the witch hazels and resemble them closely in foliage. The flowers, however, are very different in appearance, consisting of long, erect, white stamens tipped with yellow anthers crowded together in ovoid and rounded ½in. high clusters at the ends of the innumerable naked branchlets. The whole inflorescence is fragrant and very conspicuous, resembling a bottle-brush, and quite different from that of any other hardy northern shrub. The shrubs are very free-flowering, and in the autumn the leaves assume a brilliant crimson in the case of F. Gardeni and, red orange and yellow in the other two species.

In habit F. major is a sturdy compact shrub, oval in general outline and 10ft. and more tall. F. monticola is looser, more spreading and less tall, though equally vigorous. The other species (F. Gardeni) is a more slender plant, seldom more than a yard high, with weak often lolling stems and smaller flower-clusters. In the Arnold Arboretum these Fothergillas flourish, F. major and F. monticola especially, in any soil and situation, though a sandy peaty soil and a cool situation best meet their needs. They fruit freely, but, since on ripening they violently eject their seeds, they need watching if seeds be required for propagation. They may also be increased, by cuttings of ripened wood under glass, by layering and by suckers.

Distinct in character, perfectly hardy, free-flowering, free from disease pests of any kind and with glorious autumn foliage, I herewith present their pictures, and again ask: Why are fothergillas so little known in English gardens?

E. H. WILSON.



THE MORE SLENDER FOTHERGILLA GARDENI.

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PLANTING THE WATER AND BOG GARDEN

WHEN the summer is over the gardener is often appalled by the amount of renovating, remodelling and replanting that faces him during the months that vegetation is dormant. It is consoling that there is at least one department that he can leave over until the spring, and that is the waterside and bog garden planting. Indeed, had he nothing else to do, the wise gardener would wait until winter is over for this work. It is never wise to carry out this transplanting during the cold, and usually wet, days of winter. I am no advocate of mid-winter planting of anything in the garden when it can be avoided, but certainly in the water or bog garden, where the roots will lie dormant in a condition of icy saturation for many weeks, it often proves fatal. Of course, the preparation of new planting areas can be undertaken at any time during the winter, but even in this it is as well to leave those portions that are in immediate contact with the water until just before the time of planting. In such spaces the finely broken earth, and any material such as leaf-mould, peat or manure that may be incorporated with it, is likely to get sodden, and if the water rises and falls to any extent much of it may be carried away by the receding flow, whereas if left until just before the planting is done, the rapid root action will secure it against such a catastrophe.

The present article being intended as a guide as to what, rather than where and how to plant, it will be best to imagine the conditions that obtain in the majority of cases and describe the plants suitable for each position, or the various conditions it provides. Whether the water garden be small or large, stream, pond or lake, its effective treatment involves taking in as much of the area in the immediate neighbourhood as can be brought successfully into the garden picture to be created. Broadly speaking, this may be divided for planting purposes into three distinct conditions.

1. The actual water area, its depths, or shallow margins.

2. The banks close to the waterside, and the land as far back as is kept in a permanently wet condition by the percolation of water under the ground level.

3. The more distant area where the land will probably be higher, and therefore drier on the upper surface, although it almost invariably happens that it will be cool and moist underneath at about the level of the water.

The vegetation automatically divides itself up into distinct classes. There are, first, the moisture-loving trees and shrubs that thrive in any position in which they can get their roots down into the cool damp earth. Secondly, there are the plants of the herbaceous and hardy perennial class that love the lush waterside; and, thirdly, the semi-aquatic or true aquatic vegetation that will only thrive when their roots are partially or totally submerged.

In every effort of garden planting trees and shrubs are the first things to consider, and the positions for them must inevitably be decided before any other planting is arranged for. If the space at one's disposal is not too restricted, this element is negligible, but if the space is at all contracted, trees and shrubs can only be included when the utmost care is exercised as to the choice of both variety and position.

In the planting of areas round lakes or large ponds they can be used liberally, and if they are carefully disposed they are capable of producing an infinite variety of effects of colour, contour, light and shade. Always remember trees and shrubs grow, and most of them having attained their normal size are capable of completely over-shadowing groundwork planting. In waterside gardening it is absolutely imperative to plant for beauty of outline as well as cultural success. I cannot lay down any rules for attaining this, any more than an artist can give you laws of composition for picture making. Indeed, every site will present its own problems in this respect and also suggest its own solutions.

A FINE WATERSIDE TREE, THE SWAMP CYPRESS.

By far the most important trees for waterside planting are the willows. The towering blue-grey columns of the "bat" willow, Salix alba cœrulea, when the area is large enough to admit them, are valuable trees and create points that lift the scene heavenwards and make an excellent background for all dumpier trees. No waterside scene can look flat and uninteresting where one or more little groups of this form can be introduced. Another that should always be used wherever possible is S. vitellina pendula, the golden barked weeping willow. This can be planted where its slender branches trail downwards to the water surface, or in the background where it will make a foil for other plants. I think, however, it is best at the water's edge. One of its charms is its restless movement even on the stillest day, and as its graceful, slender branches sway to and fro it keeps the water surface alive with incessantly varying effects of light and shade. In winter the bark on its young growth is golden yellow. In spring the exquisite tenderness of its young greenery strikes a note that no other quite gives, and if one desires to luxuriate in a sensuous delight of pleasing colour the ground under and around it can be carpeted thickly with some blue flower, such as Muscari Heavenly Blue, Anchusa myosotidiflora or Anemone appenina.

The more upright golden willow, Salix vitellina, is also a valuable tree, and, if necessary, can be cut back hard each year. Certainly this produces a large number of young growths that give brilliant winter colour, and these "cutbacks" are very beautiful as incidents by the water's edge. Another to which the same remarks apply is the cardinal willow, Salix Britzensis, of which the bark is scarlet, and this also is a tree that attains magnificent proportions when allowed to grow naturally. There is a delightful grey-leaved willow of almost prostrate habit with silky hoary leaves that will creep down over a bank to the water's edge and send long, arching branches athwart the surface, S. sericea pendula. The warm brown of the bark is attractive for itself and gives a sense of "drawing" to the plant that is peculiarly fascinating. This willow is not used as much as it ought to be, but it should be grown as a bush, on its own roots, and not as a standard where it has to be

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grafted on a stock that usually kills the scion. S. purpurea nana, a dwarf purple species, and the grey bush willow, S. rosmarinifolia, are two other forms that can be used with discretion. S. Caprea is too coarse and rampant for the average water garden, and the weeping form known as the Kilmarnock willow is a mop-headed sort of brute for many years after planting that merely disfigures the landscape. An old well grown tree of it is certainly very fine, but there are more graceful weeping forms that render it unnecessary in the garden scheme.

Taxodium distichum, the deciduous cypress, is another tree that delights in swampy ground. It ultimately attains a great height and requires room in which to spread. Not only is the fresh green of its fernlike foliage a valuable colour note, especially in its early stages of development, but the ruddy brown and gold of its autumn tint produces a wonderful effect. This is one tree that should never be omitted in waterside planting. It will, indeed, grow actually in the water, and visitors to Kew Gardens will probably remember one there with nymphæas jostling its bole, rising from about 2ft. of water. There is a pendulous form that is also quite handsome and several varieties that, although interesting, are of no particular beauty. In all, the red-brown bark is very beautiful in winter.

SPIRÆA THUNBERGII WITH BEAUTIFUL ARCHING SPRAYS.

Except in gardens where there is room and to spare few people will want to plant the common forms of alder (Alnus glutinosa, etc.), but there is one known as A. laciniata imperialis which makes a very beautiful tree. Like the deciduous cypress, it is not averse to making its roots in shallow water. Its great merit lies in its extremely rapid growth, and it is useful for giving an established appearance to a newly planted garden.

Those who admit the elders to their planting scheme will probably prefer to restrict themselves to the garden varieties of Sambucus racemosa, of which plumosa, with deeply cut leaves, and plumosa aurea, a yellow-leaved variety, are the freer growing and most popular. There is, however, a vigorous attraction in a well flowered clump of many of the other species, particularly the North American, that is in keeping with the luxuriance of growth usually attained by the waterside.

Trees of this description are also valuable during the infant stages of the garden growth, and when other and more desirable subjects have grown up sufficiently can be cut out ruthlessly.

Poplars of most species and varieties can be planted for temporary effects, but unless the space is unlimited they grow too rapidly and assume such gigantic proportions that great care must be exercised in planting them. In gardens of moderate or small proportions they should be excluded.

Just as amenable to waterside conditions, and certainly not less beautiful, are the swamp honeysuckles; indeed, nearly all the rhododendrons known in commerce as azaleas rejoice in such conditions. Of the azaleas for this purpose choose varieties of the honeysuckle or Ghent azalea liberally. The mollis × sinensis hybrids can also be used freely. Rustica flore pleno for those who like double flowers, viscosa and its hybrid azaleoides for fragrance; but the large-flowered mollis section, beautiful as they are, should only be used sparingly. There is, however, a range of colour in those I have mentioned as most suitable that should satisfy the most exacting. There is just one fact that should be remembered in planting both azaleas and rhododendrons. Both are happier if it can be arranged that the shadow of trees protects them during the brightest hours of the day. Both have the reputation of preferring peaty soil, but it has long been proved that they will succeed admirably in good loam that is open enough to allow their myriads of tiny roots free action, and which contains no lime in its composition.

SALIX VITELLINA PENDULA BY THE WATERSIDE AT HALLINGBURY.

The andromedas also enjoy the damp areas near the water ways. Under this heading I include for convenience all those shrubs usually called andromedas, although botanically they should be divided: pieris, leucothöe, cassandra, zenobia, etc. The common bog rosemary, Andromeda polifolia rosmarinifolia is a beautiful little plant. Leucothöe Catesbæi is another useful shrub if only for the winter tints in its foliage. A fine form of this is Rollinsoni, which produces young shoots of vivid colouring and white flowers. Pieris formosa and Zenobia speciosa are two more that cannot be

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omitted. All these andromedas like to be planted in half shade.

The Virginian fringe tree, Chionanthus virginica, is another May-blooming white-flowered shrub that revels in quite boggy land in full sunshine. It makes a handsome shrub and is very fragrant.

The dogwoods are all shrubs that succeed in moist land. Some, such as Cornus florida, are valuable for both flower and autumn foliage; others, like Cornus alba and its varieties, are useful as foliage shrubs in the summer and for their brilliant wood in winter. It is the young wood that offers the greatest brilliance of bark, therefore the most successful method is to cut them back hard about April.

For winter berry no shrubs offer quite the same attraction as those of the cotoneasters that will grow in damp soil. The old well known Cotoneaster Simonsii is an example, but C. pannosa and C. Francheti are equally successful, although not essentially bog shrubs, and I have seen C. horizontalis growing in permanently saturated soil spreading its fan-shaped branches aglow with autumn tint and berry over the water and thriving as if it were a true water-lover.

The deutzias are also shrubs that succeed by the water-side and equally well in drier conditions. Deutzia discolor and D. scabra are perhaps the most satisfactory, but all are successful.

In positions moist, but not too wet, the beautiful enkianthus will love to dwell. E. campanulatus in particular is a wonderful shrub, either in spring when in flower or in autumn when its foliage lights up with a sunset glow. E. japonicus is scarcely less attractive, although with its white flowers it looks more like andromeda in spring. It has a wonderful autumn colour, however.

Myrica gale (sweet gale, or bog myrtle) is a native shrub, but not by any means common. With its fragrant foliage it is in the bog garden what Myrtus communis is in the other portions.

For broad background masses Spiræas Aitchisoni, ariæfolia and Lindleyana are all useful, while Thunbergii will send its slender, arching sprays of white flowers out over the water in February and light up the banks in autumn with glowing foliage tints.

Vaccinium corymbosum, the swamp blueberry, is another moisture-loving shrub that is pretty in May with its pale pinkish flowers, but it is a joy indeed in the autumn, every shade of scarlet and crimson developing in its foliage.

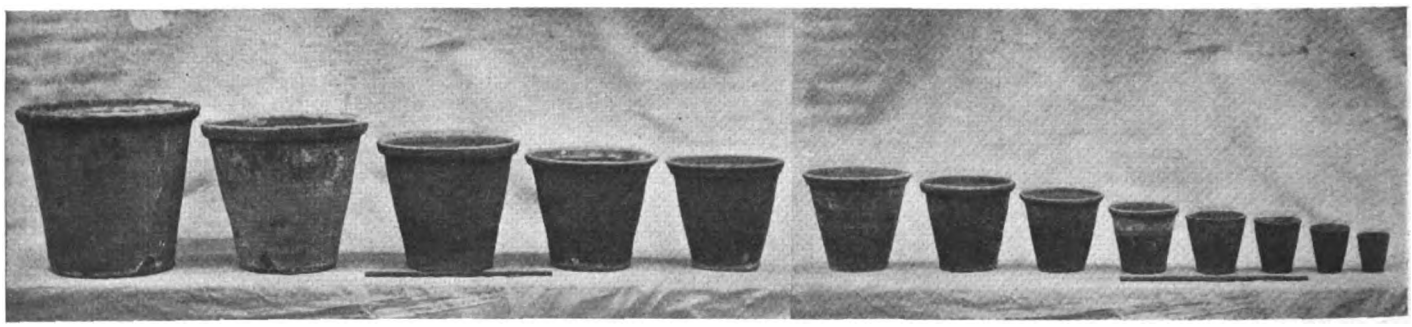
To the carpeting shrubs, such as Epigæa repens, Leiophyllum prostratum (better known as Ledum Lyoni), gaultherias and others, space scarcely allows reference, but there are a number of them that can be used in places not far removed from the waterside.

I should like to reiterate here that not *all* the shrubs I have mentioned would usually be indicated in a list for bog planting, but it must be remembered the areas near the lake or pond side are not always permanently soaked, and all I have mentioned enjoy damp conditions at their roots.

More because of their suitability of form and gracefulness of character than because they actually require wet conditions in which to grow it is necessary to mention the bamboos. Some of them it is true love moisture, practically all of them succeed in it. Most of them, whether arundinaria, bambusa or phyllostachys, will, if planted near water, spread towards rather than away from it, and will only cease their advance when they have reached its margin. GEO. DILLISTONE.

(To be continued.)

POTS AND POTTING



THE COMPLETE RANGE OF POTS, AS USED IN MODERN GARDENING.

POTTING is one of the most important of all gardening operations and it is only by some understanding of such work that one can hope to be a successful cultivator. There is no greater proof of gardening ability than that displayed by well grown pot plants, and to obtain this latter result should be the aim of all growers.

In potting, pots are of the first importance and of these there are sizes to suit all requirements—ranging from the tiny "thumb," only an inch in diameter, to the large cumbersome 20in. At the present day, pot sizes are generally indicated as so many inches in diameter; but in some parts of the country the old terms used by manufacturers are still retained, and are frequently referred to in these columns. These terms originated from the number of pots of various sizes cast from a certain quantity of clay. For example, from a certain quantity of clay sixty 3in. pots can be cast, and these are known as size 60s; from the same quantity of clay one can obtain forty-eight 5in. pots, and these are known as 48s.

The following is a list of the old sizes, with the corresponding inches in diameter. 80s, 1in. to 2in.; 60s, 3in. to 3½in.; 54s, 4in.; 48s, 5in.; 32s, 6in. to 7in.; 24s, 8in.; 16s, 9in.; 12s, 10in. to 11in.; 8s, 12in.

When pots are received from the makers they should be soaked in water for at least half an hour and allowed to become perfectly dry before using. If this is not done the dry clay will absorb the moisture from the soil to the detriment of the plant. Pots which have been previously used must be washed scrupulously clean before they are brought into service again. Not only is this a preventive to the spread of disease, but it is also necessary to ensure clean work in future pottings. It will be found that a plant which has been potted in a wet or dirty pot can only be turned out with difficulty, often at the expense of the pot and in most cases also at the expense of the plant. This is due to the roots adhering to the inside of the pot and when the soil is turned out these fibrous roots are broken off. No plant can be expected to recover from such treatment and there could be no worse example of bad workmanship.

The drainage or crocking of pots is also an important factor in good cultivation, and for this purpose potsherds provide the best material. Commence by placing a large piece, convex side up over the hole, round this place somewhat smaller pieces, then cover these over with ½in. or ¼in. chips, according to the size of pot. When crocking, the number and size of the crocks used depends on the size and the nature of the pot, and on the plant to be potted, but a few well placed pieces will prove more effective than a handful just thrown in. To prevent fine soil from being washed into the drainage, place some rough material over the crocks, such as fibrous loam or rough leaves.

One of the most difficult operations in potting, and one which requires a great deal of care, is the potting up of rooted cuttings. In such a case we are dealing with a newly formed individual, characterised by a delicate root system and a vigorous aerial portion. This we set to nourish itself, a task which may

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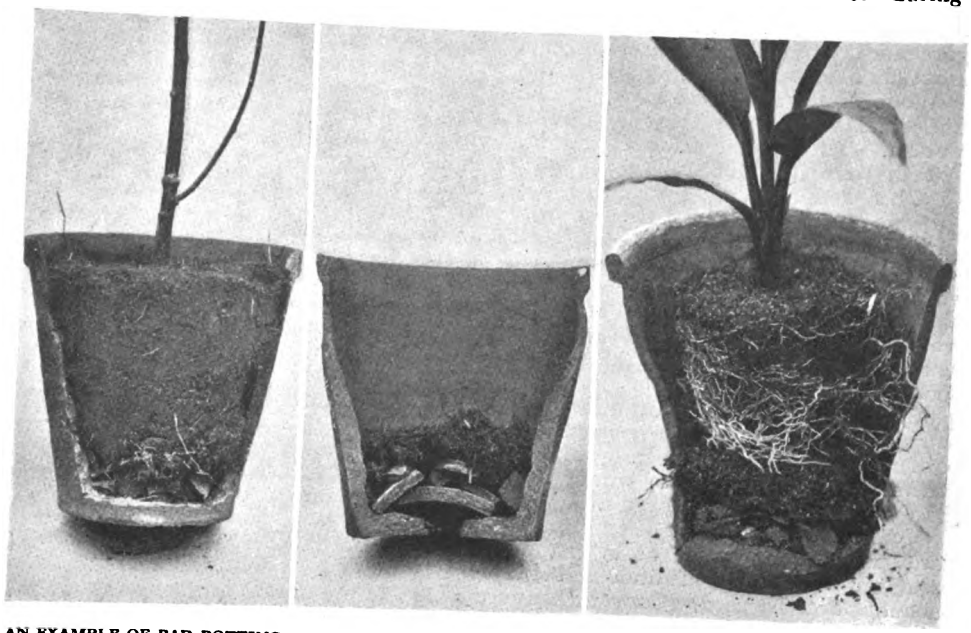
prove too much for it unless it is carefully nursed. Work of this kind should, if possible, be carried out in the house occupied by the cuttings, so that they may not suffer from any change in temperature. The soil should be previously prepared and the pots used just large enough to take the roots without these touching the sides. Fill about one-third of the pot with soil, then insert the cutting, holding it in position with the left hand; heap the soil up round this to rather more than the level of the pot, then, placing the first two fingers of each hand on top of the soil, raise the pot and rap it twice or thrice on the bench. This will bring about an equal firmness of soil all the way through. Pressing on the surface with the thumbs or fingers should be avoided. Cuttings which have been rooted in a close case should be placed under the same conditions for two or three days after potting, then by gradually admitting air, accustom them to the bench conditions, where, in about a week's time, they may be placed.

The successful growing of batches, such as biennials for greenhouse work, will greatly depend on the method of potting. Most of these are of rapid growth and should at no time be allowed to suffer from the lack of food material at the root. Commencing with the seedling, the best method is to prick out three or four round the rim of a 3in. pot. This ensures that the roots shall occupy the most aerated part of the soil, a condition which is beneficial to root development; also that the young plants are not totally separated from their neighbours, which is undoubtedly an advantage to plants at this stage. Once these have formed sturdy little plants with a good root system, they should be potted up singly into 3in. or 3½in., according to the size of pot it is intended to flower them in. Should this be a 7in., the following shifts are the most suitable, 3½in., 5in. and 7in. On the other hand, if they are to be placed finally in a 6in. pot, the best shifts are from 3in. to 4in. and then to 6in. In the early stages of growth the potting of such plants should be only moderately firm, with increasing firmness at each future potting, but rarely will it be necessary to use the "potting stick," the fingers and a good tap on the bench should suffice.

At no time during growth should the plants be allowed to suffer from the lack of root space. One or two plants should be examined periodically in order to ascertain the condition of the roots by turning the ball of soil out of the pot. This should be done by placing the fingers on top of the soil, with the stem of the plant between the first two, then turn the pot upside down and knock the rim on the edge of the bench. Loosened in this way the pot will lift off easily, but in doing so care should be taken not to displace the crocks. As soon as the roots show movement round the outside of the ball, then re-potting should be carried out almost immediately, unless such a condition occurs towards the end of the year when growth is almost at a standstill. It is then better to defer re-potting until growth has recommenced. Plants never do well if over-potted, that is potted on before they have developed a good root system, or it may be by giving them too big a shift. Another mistake is potting on at a bad time of the year. The effects may be somewhat overcome by careful watering, but even this seldom proves successful. The best growing months of the year are April, May and again in September, and the best time to pot is just prior to these periods, say March and towards the end of August and the beginning of September.



AN EXAMPLE OF BAD POTTING. PLACING OF THE CROCKS. RE-POTTING.

It is the usual practice to have a general re-potting of all established plants during spring, for it is necessary at this time that such plants should have some fresh material by which they can build up new growth, and being in a vigorous condition they are better able to overcome the check from root disturbance. Of all our plants perhaps the hardwoods dislike being disturbed at the root most of all, but if the work of re-potting and the treatment thereafter is carried out carefully, few losses should occur. On turning the ball out of the pot, in most cases it will be found that the roots have formed a mat round the outside and that the crocks are completely overgrown. With a sharp-pointed stick pick out the crocks, at the same time prick over the ball, removing some of the old soil and carefully disentangle the roots. Select a pot just large enough to allow about ½in. of fresh soil all the way round. In the bottom of this place sufficient soil, packing it firmly, to bring the surface of the plant ball up to the previous level, as deep planting spells death to many hard woods. Only small quantities of soil should be filled in at a time and this must be packed firmly and evenly all the way round with the "rammer." To ensure the least possible check the soil must be brought into close contact with the roots, therefore firm potting is necessary. Aim at getting the fresh soil and that of the old ball equal in firmness. On the other hand, if the soil is filled in carelessly, bad packing at the base is almost sure to occur, even to the extent of cavities, resulting in the roots in this area becoming dried and useless and, ultimately, in the death of the plant.

Most hardwoods will benefit through being potted twice during the season, and especially those which flower during spring. The best times being immediately after flowering and again at the beginning of September.

To deal with the method of potting for all kinds of plants would require more space than is available, but there are a few general principles which may prove helpful to those who are sometimes in doubt.

Most softwooded plants require to be potted less firmly than the hardwooded sorts, so also with those which have thick, fleshy roots, such as anthuriums. These should have an open compost and this only moderately firmed in the pot, while those with very fine roots, such as our heaths possess, must be potted firmly.

Orchids and other plants which produce aerial roots only require some open fibrous material which will retain moisture.

Plants should at no time be potted while in a dry condition, for future waterings will simply pass through the fresh soil, leaving the old ball dry. Neither should they be potted immediately after being watered, as a soft ball will be forced out of shape, often rising in the pot by the firming of the fresh soil. The moisture content of the potting soil and that of the plant ball should be as nearly equal as possible. Ample space must be allowed at all times for water. This should be at least ½in. to the 3in. pot, with a gradual increase as the sizes become larger.

The watering of plants or "flooding home" immediately after potting is to be strongly recommended. Not only does this settle the soil round the roots, but it brings about an even condition which is so important in reducing to a minimum the harmful effects of re-potting.

W. LAMBERTON.

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THE MANURE PROBLEM—III

THE gardener is more favourably placed than the farmer in regard to many manurial substances, partly owing to the very limited supply in some cases, and further that the gardener is often able to obtain enough from his own garden or holding.

WOOD ASHES are a case in point, and the chief plant food they contain is potash. Before the salts containing potash were introduced large supplies of ashes were collected by Kentish hop growers chiefly from cottagers who largely used wood as fuel for their domestic hearths. One cannot go wrong in applying wood ashes to most soils; they are practically fool-proof and have the effect of improving the tilth of many soils. Ashes from the garden bonfire are also valuable for their potash. If wood ashes are kept for any length of time, it is necessary, in order to preserve the potash, to keep them dry. If exposed to winter rains the potash is quickly washed away.

COAL ASHES, it should be emphasised, are practically useless as a manure, and on a light or medium soil they should never be used. On very heavy, sticky soils they, perhaps, serve their purpose in making them more amenable to working, but even in this case caution should be the keynote.

SOOT is probably more generally used in gardens than any other local substance, and its merits and demerits are probably more discussed than any other fertiliser. The chief value of soot is as a manure supplying nitrogen and used as a top-dressing in spring. It further has a tendency to improve the tilth of heavy soils and is also largely used in some market-growing districts for raising the temperature of the soil. It certainly has this effect, and is useful also in checking various pests. The quality of soot varies very considerably, and the soot obtained from the home fire is usually preferable to all others. The lighter the soot the more valuable is its manurial content. It is necessary to store it in a dry place some weeks before using. It should not be mixed with lime. When this is done the ammonia escapes and the manurial value is destroyed.

POULTRY DROPPINGS.—The supply of poultry droppings has increased during recent years, and in many districts is easily obtainable in bulk. Properly used, poultry manure is a valuable asset to the gardener. It is a complete manure containing nitrogen, phosphates and potash. The best results follow by thoroughly drying the collected poultry droppings and powdering them before use. Additions of dry soil are helpful as a factor to hasten the drying. The use of poultry manure is, unfortunately, abused by many people by being thickly applied and dug into the soil in a similar manner to farmyard manure. The result is generally weak, sappy growth to all plants. It is essentially a manure for top-dressing and is useful to all crops during their growing period. A valuable liquid manure can be made by placing about a peck of poultry droppings in forty gallons of water.

SHODDY is chiefly valuable as a substance gradually releasing nitrogen for the use of plants over a prolonged period and also for supplying organic matter to the soil. Where farmyard manure is difficult to obtain, shoddy becomes doubly valuable owing to its bulky organic content; however, used alone it is not a satisfactory substitute, because it does not supply the phosphoric acid and potash as in the case of farmyard manure. Samples of shoddy vary very considerably. Cotton waste as a manure is unremunerative if it has to be purchased; it is the wool waste which contains the valuable manurial properties. It is nothing exceptional to see large quantities of pieces of old sacking and cotton rags being dug into allotments, and it appears to many people that any material which decays when dug into the soil is good from a manurial point of view. Shoddy is being used by hop and fruit growers in Kent in largely increasing quantities, probably owing to the scarcity of other organic manures.

FEATHERS.—That feathers are invaluable as a manure there can be no question, and in the case of large feathers their use also appreciably helps to maintain the physical balance of the soil. The price of feathers is often considerably lower than shoddy, and when cognisance is taken of the fact that a good sample of feathers contains as much as 16 per cent. of ammonia, it must be admitted that a case is made out for their more general use. Unfortunately, many samples of feathers contain a large quantity of dirt, and a guarantee as to their purity should always be obtained. Small feathers decay rapidly and supply a freely available source of nitrogen.

SEWAGE MANURES.—A good case has yet to be made out for these substances as a remunerative manure to purchase; however, methods of treatment are progressing, and it is probable in the near future that a satisfactory method of treatment will be developed which will produce a useful manure from these waste products.

GREEN MANURING could be practised much more generally with advantageous results to many soils. Green crops are valuable for supplying humus to soils and also preserving the plant foods as well as supplying them. Mustard is probably more used than any other crop, and on chalky soils it is undoubtedly the most useful. The one disadvantage attaching to its use is that it is necessary to sow it early in order to secure good growth for digging into soils before frosts affect it. Tares are not suitable for the light and chalky soils, but lupins are often particularly valuable. Rye is a crop which can be sown late in September and to the middle of October. It can remain all the winter and be dug into the soil in spring with good results.

FARMYARD MANURE.—To many people to discuss the use of farmyard manure appears superfluous, and as a fool-proof manure it is almost complete, but there are certain aspects which can be usefully discussed. The storage methods employed for farmyard manure are often bad ones, and when exposed to the weather the value of the manure is considerably reduced. In the case of gardens where manure cannot be used at once, it is a good plan to place the farmyard manure in a heap and case it over with a layer of about 6ins. of soil An application is beneficial to most soils, the exception being the peaty and sour soils. It is best applied to heavy soils in the autumn or winter, and the long strawy manure benefits such soils more than well decayed short manure. The latter is more useful for digging into light soils during the spring.

LIME.—Efficient manuring is impossible without the presence of lime in the soil or in the manure to be applied. Lime is a substance which benefits the plant in addition to the soil, and its presence in the soil for most crops is an indispensable condition for their successful growth and maturity. To describe all the advantages pertaining to lime would require several pages of THE GARDEN, and it is only possible just to bring its importance forward. Many artificial manures, as well as organic manures, are incapable of being utilised by plants if lime is lacking. Finger-and-toe of the cruciferæ and various insect pests are often prevented and checked by its presence. Germs useful—in fact, indispensable—to plants are encouraged by its existence. Its effect for improving the texture of soils is also well known. The few advantages are mentioned as evidence to show the necessity for lime in all soils where the common vegetable and fruit crops are grown.

H. C. ELSDON.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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NOTES FROM CONTRIBUTORS

LAYERING RHODODENDRON MUCRONULATUM.

READERS of THE GARDEN who have seen Rhododendron mucronulatum flowering this season and wish to increase their stock may be interested in the accompanying photograph, which illustrates one method by which they may successfully obtain more plants of this early-flowering rhododendron.

The plant illustrated is one of two large groups growing at Kew, and was selected for propagation on account of its very fine form, free flowering and colour. The original intention was to pot it in a large pot and stand it under glass for the purpose of obtaining soft cuttings, which form a ready means of increase: but on lifting it was found to have a huge ball of soil and the branches proved so very flexible that layering suggested itself as the best method of propagation. Cuttings would, of course, provide a greater number of plants, but these would take much longer to grow into flowering specimens.

THE PROPAGATION OF RHODODENDRON MUCRONULATUM BY LAYERING.

The plant was lifted on February 14th just after flowering and transplanted to the arboretum nursery. A few barrow-loads of prepared soil were spread round it and made level and firm. Each branch in turn was then carefully brought to ground level and pegged securely down with strong wooden pegs. After pegging they were bent abruptly upwards and tied to bamboo canes. Great care should be exercised at this point, as the branches are liable to break between the peg and the tying. It will be noticed that each branch is bent as near as possible to a point where the main stems branch out. This should always be aimed at, so that a well furnished plant is produced.

Although perhaps not necessary, the outside bark may be scraped off the larger branches on the side which is next the soil, and in doing so care should be taken to avoid cutting away the wood. This operation will assist in checking the flow of sap and promote root growth; but it is found, however, by experiment that the abrupt bend is quite sufficient for this.

The need of care in pegging down, bending and tying up each branch cannot be overemphasised. On no account should either of these operations be carried out quickly. A steady, persistent pull will successfully bring the most difficult branch into position, and in tying, a running knot is best employed. Further to ensure success, every tool that is likely to be required should be lying handy. Pegs of various sizes should be made beforehand, and strong bamboo canes selected, so that the work can be carried out expeditiously.

When all the branches had been pegged down and tied up, more prepared soil was worked round them and made firm, care being taken that every branch was covered. It will be noticed that no extra soil is put round the "collar" of the plant. This should be left as though the plant were growing naturally upright.

Finally, wet turves were packed very tightly round the soil so that during the summer the layers may be successfully watered.

The layered branches will gradually form roots and at the end of about two years will be ready for severing from the parent plant and transplanting. These operations should not be carried out at the same time, the former being done a little before the latter.

While the pegged branches are forming new plants the stock plant will send up new branches and these in turn can be pegged down after the transplanting of the first batch. This method in time will result in a large number of plants being obtained from the original stock plant.—F. P. KNIGHT.

ANEMONE PALMATA.

THIS choice windflower deserves all the praise bestowed upon it by "Sandstone" (page 95); but I have been driven to the conclusion that it is no plant for our humid west. Time after time have we placed it in the sunniest spots at our command, always with the same result—a few flowers grudgingly given in the first season after planting; then, nothing but some scattered leaves as a prelude to death.

I came to realise the reason for our disappointment in May, 1921, when journeying by motor from Lisbon to Badajos. Between Setubal and Casa Branca the track lies over a dry moor, bare and sun-baked, but very rich in wild flowers. On the highest part of this plateau, where the clay soil was cooked to the consistency of pantiles, a space of some two or three acres was densely peopled with Anemone palmata. The foliage was nearly all dried up, the flowers nearly all gone to fluffy seed: only here and there were a few belated blossoms, both yellow and white. The conditions of air and soil were far different from any that we can provide in our sloppy climate, and I have abandoned all hope of success with this charming herb. I venture to think that "Sandstone's" prescription of peat, leaf-mould and summer moisture are conditions quite alien to its requirements, for these are just what are lacking at the place I have described.—HERBERT MAXWELL, *Monreith*.

THE SPRING SATIN FLOWER (SISYRINCHIUM GRANDIFLORUM).

IT may be, as some assert, that we attribute to the earliest flowers a charm beyond that which awaits the later gifts of Flora—a perfection which they do not deserve. But we are not prepared to assent to this reservation when we think of or see the marvellous loveliness of these often fragile-looking blossoms, which, with all their slender beauty, dare the dying winter's fiercest struggles. Most of them are lovely indeed and not to be surpassed by the flowers of summer or autumn with their more mature graces. And surely no one can venture to assert that the spring satin flower, Sisyrinchium grandiflorum, is surpassed in grace or in the marvellous colouring it shows. To see it piercing through the snows of February and hanging its delightful bells of wondrous violet or purple above the snowy carpet is to witness a loveliness which gives us joy. It is, indeed, a very beautiful plant. It has long, narrow, rush-like leaves, and above these a slender yet strong stem which bears almost translucent brilliant violet blooms, bell-shaped, and pendent from the fragile-looking pedicels with a grace unsurpassed. Its white variety, S. g. album, now quite scarce, is very lovely also, yet it does not cheer us as does the violet or typical form. It is a gem of gems, and happy are they who have clumps of S. grandiflorum—and plenty of them—in their gardens.

To secure such it ought to have a cool, peaty soil, where it will increase fairly quickly. I do not advocate too frequent division, nor would I advise planting it in too dry soil.

I think it looks best in nooks of the rock garden, where, a little above the ground level, it is more effective than on the flat. The white variety shows well against dark rockwork, but the violet or violet-purple one looks finer when the rockwork is veiled with, say, a mossy saxifrage, so that the colouring of the bells may stand out against the greenery. A good mass in the border is highly attractive, however. S. grandiflorum generally flowers in February and goes on until early summer. It is thoroughly hardy, but it sometimes resents disturbance, and ought to be planted in very early autumn rather than later in the year or in spring as some do. Plants in pots can, however, be planted out at any time. By the way, those who possess an alpine house may well add the spring satin flower to the collection of alpines grown in pots as its beautiful purple or violet bells lend a distinct tone of colour to the house, which is generally lacking in bright shades at this time of the year.—S. ARNOTT.

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CORRESPONDENCE

GENTIANA PYRENAICA.

SIR,—In Mr. Clarence Elliott's interesting article on this plant (page 112) it is a little surprising to read that since seen about twenty-five years ago at Backhouse's York nursery, he has "never met the plant either in gardens, conversation or books;" and that he does "not think Farrer ever grew G. pyrenaica, and I much doubt if he ever saw it, which makes his description of it in his 'English Rock Garden' all the more wonderful."

One would have thought Mr. Elliott had known Farrer well enough to realise that his "extraordinarily true and vivid" descriptions of plants were due to the fact that he *knew*, often in their native haunts, most of the plants he described, aided by his artistic and poetic temperament and wide culture. I would suggest that these very qualities would prevent him from giving a good and Farreresque description to a plant he had not seen. Moreover, Farrer briefly mentioned this plant on page 216 of "My Rock Garden," where we read: "In the same category as *bavarica* come *pyrenaica*, too, and *imbricata*, both of whom (*sic*) are beautiful, both of whom are damp-lovers, both of whom I have tried and lost so frequently that I will hurriedly pass by these skeletons in my cupboard."

And surely Farrer, a north countryman, must have seen G. pyrenaica in the York nurseries, where many years ago it was introduced to English gardeners. I take a particular interest in this plant, apart from its beauty, because early in July, 1903, I had the privilege of accompanying my friend James Backhouse to the Eastern Pyrenees, and it was from those damp pastures near Mont Louis that the stock of this lovely gentian was then replenished at York.

Looking up all that has been published in THE GARDEN these three years about the Pyrenees and gentians, and they have been both valuable and readable articles, there is one writer to whom the "doubt if he ever saw it" would seem to be more applicable! That writer says: "G. pyrenaica, when it is obtained true, is an excellent moraine plant with well rounded flowers of a rich deep blue colour, but without the startling brilliance of G. Gentianella or G. verna." The same gentians, however, vary greatly in colour, and it is possible that pyrenaica may sometimes become bluer under cultivation. Mr. Elliott's description, "an intensely brilliant violet purple," is excellent, and does more justice to the colour than my own, "a rich violet." His suggestion of a distinct relationship with the group of ornata gentians is also commendable. It must not be forgotten that G. pyrenaica is one of several good Pyrenean or French plants which miss the Alps and re-appear in the Carpathians and the Caucasus. It is satisfactory to know that a goodly supply of this remarkable and too little known gentian is striving so well at Stevenage. The last time I saw it exhibited was at the "Bath and West" Agricultural Show in Bristol a few years ago.—H. S. THOMPSON.

PLANTS AND PEOPLE.

SIR,—I read with much appreciation in your issue of February 28th a contribution on "Plants and People," by Dr. F. A. Hampton. In this paper Dr. Hampton calls attention to two interesting names suggested by the late Mr. Reginald Farrer, but expresses the opinion that as these are not official they have perhaps already passed out of use. May I point out that Mr. Farrer's suggestions have been adopted, and both species have been described. The name "Reginella" was coined by Mr. Farrer for a delicate little primrose found by him in Kansu. While it is quite correct for Dr. Hampton to say that this name has some reference to Mr. Farrer's Christian name, I believe that Mr. Farrer had in view another interpretation of the word. Obviously, it can be translated "Little Queen." Mr. Farrer's choice was no doubt conditioned by the fact that the name served thus a double purpose. The species will be found described in "Notes from the Royal Botanic Garden, Edinburgh," IX (1916), page 197, as Primula Reginella, Balf. f. et Farrer. The cypripedium which Farrer noted as having a countenance resembling that of Bardolph is described in the same publication, page 101. Readers of the journal, as well as Dr. Hampton, may be interested to know that Mr. Farrer's two happy suggestions will not pass into oblivion. —W. W. S.

ERINUS ALPINUS.

SIR,—Your contributor Mr. Markham has sent a very interesting note and illustration on this useful and beautiful alpine. Here it grows vigorously, seeding itself over the rock garden and coming up in unexpected places. To get the best effects both the white and the rose form should be grown, and I would add the other member of the family, E. hirsutus (Farrer gives E. hispanicus as the correct name). When the rose form of E. alpinus and E. hirsutus are grown together they make a charming blend in colour, especially when seen in the evening light. Position seems to matter little with me; those plants grow everywhere and are very much at home in the moraine. It may be that the damper climate of Scotland is more to the liking of those plants than the south of England, but it is surprising that a southern plant makes itself so much at home on the chilly east coast of Scotland.—WILLIAM LOW, *Montrose*.

RHODOSTACHYS.

SIR,—Much interest has been evoked by the publication of Mr. McMullen's note and photograph of the rhodostachys which flowered in his garden last December. It would seem that the genus is commoner in cultivation than is generally supposed, and the several notes which have since appeared show the value of making others acquainted with anything unusual flowering in private collections. Mr. McMullen's plant was an offset from a plant in Mr. Smyth's wonderful garden at Dalkey, and it, in turn, was supposed to be from the old plant which has grown for many years in a narrow border adjoining the succulent house at Glasnevin. The latter is labelled R. andina, hence the reason for believing Mr. McMullen's plant to be that species. It would appear, however, that Mr. Smyth's plant cannot be an offset from the Glasnevin specimen of R. andina, but was probably an unflowered pot plant of R. Pitcairniæfolia, and it is remarkable that whereas the offset has flowered with Mr. McMullen, no attempt at an inflorescence has been made by Mr. Smyth's plant, though apparently more favourably placed. Both species are comparatively hardy, given a sunny, sheltered position at the base of a wall, or elsewhere, and well drained loamy soil. The uncommon appearance of the plants, combined with the unique colouring of the flowers and surrounding leaves, especially in R. Pitcairniæfolia, invests them with very great interest to lovers of plants. A plant of equal interest and very similar in leaf arrangement is Pitcairnia spathacea (*Botanical Magazine*, 7966), which flourishes in the same border at Glasnevin. In this case, however, the inflorescence is more or less erect, forming a panicle, totalling a height of 2ft. or more. The bracts on the scape and subtending the flowers are pink, as also is the calyx; the petals, which project considerably beyond the calyx, are pale blue. Those who are interested in uncommon plants might do worse than try this pitcairnia where rhodostachys succeeds.—J. W. BESANT, *Glasnevin*.

SMALL POTATOES AS SEED.

SIR,—There is little that I can say in answer to "E. E. P." and Mr. Stuart, who both understand the position and both, I seem to think, agree with me entirely. Rogues, of course, ought to be weeded out in every garden where seed is saved, and no seed sets should be selected from a root which has all its tubers small—a suspicious mark when other plants are normal. It is always best to begin to "rogue" a crop in the sprouting trays, and yet a rogue may have correct family ties but develop undesirable attributes later on. "Rogueing," then, must continue, and another fine time to weed out bad plants is after earthing-up finally, when the haulm meets in the drill; the work of selection, indeed, goes on until the potatoes are stored in bulk. I cannot satisfy Mr. Stuart by defining reversion. A plant of any variety may not be true to its parents; if its new properties are good we have, in all probability, the birth of a new variety, but if they are inferior to the parent we have reversion of a kind. Reversion, then, may not mean a return to an absolutely ruthless state. I agree with "E. E. P." in regard to the size of seed; small sets are from 1½oz. to 2½oz., from the size of a golf ball to that of an egg, but the sets vary very much in regard to weight and size. A full-sized tuber is twice that size. By cutting it into two there is no loss, into three a distinct gain—and then there is the possibility that the tuber is likely to be a good parent. The three of us are agreed that clean, immature, *small* sets are undoubtedly fine croppers, and I think we will agree that one reason why potato culture is not at present in as healthy a condition as it ought to be (too many partially understood diseases) is because small seed sets have become an absolute fetish with some growers.—H. H. A.

SEEDS AND SEED LISTS.

SIR,—The subject of seeds and seed lists in your issue of February 7th, prompts me to enquire why it is that seeds of trees and shrubs are, to the ordinary amateur at least, practically unobtainable in this country. At all events, I have not yet succeeded in finding an English firm of seed merchants which list these items, and an enquiry to THE GARDEN some two years or so ago failed to provide any enlightenment. There must surely be many amateurs who, like myself, indulge in the fascinating pastime of tree and shrub propagation, and it has always been a mystery to me why there is apparently no English firm sufficiently enterprising to cater for this branch of horticulture. The remarks in your Editorial, on the quality of the average English seedman's goods, are unquestionably justified. But there *are* other things besides vegetables and annuals which can be raised from seed, and it seems extraordinary that for such items it should be necessary to apply to one of the Continental seedsmen, who publish comprehensive lists embracing all kinds of subjects which the English catalogue totally ignores.—ERIC F. WETTERN, *South Croydon*.

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ONIONS.

SIR,—The note on Onions by "Claremont" has tempted me to write my experience with the onion fly. I have grown onions—as a hobby—on light and heavy soils, and have only had trouble on the light. The fly appeared to me to find the plant by its scent so I thought I would plant a row of Viola Maggie Mott, which is strongly scented, across the bed about every fifth row. Result: very slight attack. A light dressing of fish meal once a week was also very effective. Up to the present I have never had a red onion (Barr's Red Globe) attacked by fly. Are some varieties immune? I think the fly passes the winter in the pupal stag eand hatches out in the spring. If onion-growing could be given up for one season only, over a wide area, I firmly believe that district would be free from the fly for a number of years. I expect some of your famous contributors will smile at an amateur's methods, but I dislike being beaten by a fly.—C. LACEY, *Wimbledon.*

SIR.—"Claremont" need not have had any difficulty in ripening his onion bulbs had he dried them in a slow oven or over a fire after they came to maturity. I find the simplest plan in ripening onions is to lift the bulbs slightly, towards the end of August and again early in September, with a digging fork, and when the leaves commence to turn brown, pull up and bunch loosely together and ripen off out of doors as far as possible; then place them for a few days in a slow oven until the outer scale leaves become brittle, when they can be stored in a cool outhouse where a good circulation of air passes freely among the bulbs.

My experience with onion fly is that the eggs are laid under the bulbs, not among the leaves, and when the maggots hatch out they commence to feed and eat their way to the centre of the young bulbs and cause decay. Deep planting in spring is very effective in checking the ravages of this pest.

"Claremont" asks the question, "Is it possible for the larva of the onion fly to lie dormant in the soil from one year to another and then awaken to activity?" I am afraid the larva—or, to be correct, the maggots—do not pass the winter as such. The metamorphosis of the onion fly is complete: that is—fly, egg, maggot and pupa.

The maggot hatches from the egg and eats greedily for some time, and when full-fed it becomes a pupa inside a brown case, usually in the soil where the onions had been growing and there remains all winter; in spring the fly emerges from the pupa.—GEORGE STUART, *Edinburgh.*

PLANT NOMENCLATURE.

NAMES ENDING IN "I" OR "II."

SIR,—This matter has been decided officially by the International Congress of Botanical Nomenclature held at Brussels in 1910, and is as follows:

When a specific name is taken from the name of a man, it is formed in the following way:

(*a*) When the name ends in a vowel, the letter "i" is added (thus, "Glazioui," from Glaziou; "Bureaui" from Bureau), except when the name ends in "a," when "e" is added (thus, "Balansæ," from Balansa).

(*b*) When the name ends in a consonant, the letters "ii" are added (thus, "Magnusii," from Magnus; "Ramondii," from Ramond), except when the word ends in "er," when "i" is added ("Kerneri," from Kerner).

(*c*) Syllables which are not modified by these endings retain their original spelling, even in the case of the consonants "k" and "w" or groupings of vowels which are not used in classic Latin. Letters foreign to the Latin of botanists should be transcribed, and diacritic signs suppressed. The German ö, ä, ü, become oe, ae, ue; the French é, ê and è become, in general, e.

(*d*) When specific names taken from the name of a person have an adjectival form a similar plan is adopted (Geranium Robertianum, Verbena Hassleriana, etc.).—EDWARD A. BUNYARD.

SNAILS AND SLUGS.

SIR,—For many years now I have used ducks as slug catchers, and find them far the most pleasant and economical method. I agree with Mr. Spragge (page 94) that they should be of one of the light breeds, or they will do quite as much harm as good, and I myself have Indian Runners. But the most valuable period of a duck's life as regards slug-eating is from about the second to the ninth week, when it will consume hundreds in a day, and at that age never touches green food, unlike a chicken, which is largely vegetarian. I think anyone would find it worth while to hatch a sitting or purchase some young ducklings, and if of the Aylesbury or other large breed, they can generally be easily disposed of at two or three months old.—E. M. LUPTON. *Leeds.*

SIR.—I should like to add my testimony to the efficiency of alum as a slug and snail destroyer, as advocated by your correspondent, Mr. Richardson.

I have two large clumps of Iris stylosa, and when they commence to bloom in November, nearly every one of the succulent young stems have been hitherto eaten off by slugs; but since spreading some powdered alum round them, and also in the centre, every bloom has been perfect all through the winter. It also seems to have a very lasting effect, as I have only made two applications in three months, notwithstanding the heavy rains we have had all through the winter, whereas the soot, salt, etc., which I formerly used had to be frequently renewed. I have also tried it with polyanthus and primrose on an old garden wall and rockery which are infested with slugs and snails, with the same beneficent result; but care should be taken to put the alum only round the stems, as I find that, if sprinkled in the foliage, it turns it yellow.

I see that in experiments made at Wisley by the R.H.S. in the destruction of slugs, etc. (R.H.S. Journal, July, 1924), they also advocate the use of sulphate of aluminium, which is alum, mixed with a saturated solution of lime in water, which I intend to try later on for delphiniums, dahlias, etc.—G. ANSDELL *Dinton.*

SIR,—Mr. F. C. King's note in your issue for January 31st, page 65, anent snails and slugs is not only interesting, but verging on comic, and seems all but incredible. Fifteen thousand slugs destroyed per day, or, taken at the same rate, 210,000 in a fortnight's work, is truly astounding. It seems such a Utopian spot for the propagation of this slug that would it not be worth his while, seriously considering the cultivation of the edible snail and supplying the Paris market? Personally, I think I suffer from every conceivable garden vermin except the snail, so cannot speak from experience, but ducklings seem the most likely cure under the circumstances—and what ducklings they would be! A great number of birds abound in my neighbourhood, and doubtless they take a considerable toll, in part payment at least for other damage done. Could Mr. King not encourage them in larger numbers?

It would be interesting and helpful to know the nature of the lands which abound in this snail-tormented spot. Could the ground not be left fallow for a year and so starve the vermin out, and if not too large an enclosure an edging of zinc, such as old roof ridges, would, I fancy, keep the ground clear from the pests in the future? Snails, somehow, cannot or will not cross zinc. Mr. King has my sincere sympathy, but there is really something comic in the situation and the feeling of forlorn hope mixed with not a little anger in his letter. His earnest desire and efforts in their destruction, however, cannot but be admired.—FORMAKIN, *Renfrewshire.*

SIR,—In connection with the destruction of slugs I would like to give another remedy which from personal experience I have found to give excellent results. I refer to the value of a waste product, namely, spent carbide from the pans of an acetylene gas plant. My first impressions of its value were many years ago, at Barrow-in-Furness, when I had the option of some loads of spent carbide for some footpaths. To my surprise, after being down on the path for one night I found that earthworms of all sizes were killed in great quantity. This gave me a clue, and knowing that worms, slugs and snails were all soft-fleshed pests, I experimented further and found that the least contact of each of these pests with the carbide was sufficient to frizzle them and destroy. Before my present master removed from Derbyshire into Durham, we had a carbide gas plant, and all spent carbide I used for footpaths. The carbide acted as a pest-killer, and also as a weed-killer. Not only has it the foregoing uses, but is too a soil steriliser for scab and rust, and slug-eaten potatoes. I gave a farmer many loads to work into a piece of old worn-out ground; this he ploughed in in the autumn, with the result that in the following season he had the most beautiful clean root crops. Like soot, lime or salt, the dry powdered carbide, which is so very valuable to have in tins for use at any time, is minimised in its effectiveness if saturated with rain.—W. H. LUCAS, *The Manor Gardens, Hurworth-on-Tees.*

IVY AS AN EDGING.

SIR,—Ivy makes a unique and attractive edging to the shrubbery, the lawn and occasionally to a selected flower border. The rooted cuttings (cuttings may easily be rooted for this purpose) are planted in line and then pinned down in freshly dug soil which is in good heart, and all subsequent growths for a year or two are pinned closely to the ground in a similar way. After this the shoots are pinned down loosely for a year or two, and finally all that is necessary is to weave new shoots under those already pinned in position.

The ivy is fairly slow in growth, but in time it makes a lovely billow of delightful green. The leaves should be clipped off every March, and they will soon come up again delightfully fresh. We have also seen the golden and smaller-leaved kinds used as edgings, but we think the strong large-leaved Irish ivy better than any.—LANARKSHIRE.

IONOPSIDIUM ACAULE.

SIR.—I notice that in your issue of February 14th you mention among "the more uncommon annuals" Ionopsidium acaule. It certainly should be more grown, as it is most useful as a groundwork plant. We sowed it here round the wide stone base of a statue in full sun, and apparently in gravel, although some good soil had been put under the base. It bloomed profusely in June and July, and then sowed itself, so that there was a new and larger crop by October, which has been in full bloom ever since, such frosts as we had not affecting either leaf or flower.—H. AVRAY TIPPING, *Middlesex.*

EXCHANGE.

SIR,—I shall be pleased to exchange three good plants of Saxifraga granulata flore plena for three plants of Phlox canadensis Laphami.—O. WILSON, *The Gardens, Arthington Hall, Leeds.*

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SIMPLE GARDENING

PREPARING GROUND FOR LAWN GRASS SEED.

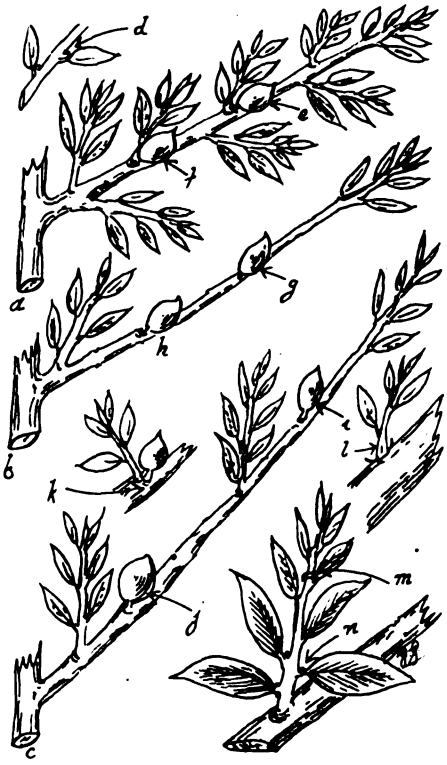
IN the southern counties grass seeds should be sown about two weeks earlier than is advisable in the northern. The soil is warmer and drier generally, and, consequently, easier to prepare than in wetter and colder parts. It is well, too, to get the resultant seedling grasses strong and well established before the hot days of summer come. Soils in some situations do not require much preparation—those that are free from large stones, coarse weeds and other foreign matter; also, those that are level or nearly so. A dead level is not advisable, as water may lodge there too long during a rainy winter; it is only safe to have a quite level lawn in places where the ground is naturally very sandy. A lawn the size of a tennis court should be about 3ins. to 4ins. lower at one end or side than the opposite. Levelling sloping ground is always tedious work if it is done thoroughly. The top 9ins. of soil should be taken off and placed conveniently, then the soil of the higher half should be transferred to the lower, and the subsoil of the higher half forked up, well broken and covered with a thin layer of rich compost. The 9ins. of good surface soil first removed should be replaced evenly over the whole; thus all parts will be of equal richness or nearly so. This is also the best opportunity for thoroughly cleaning the soil.

RE-POTTING CHRYSANTHEMUMS.

It does not matter whether the plants are intended to bear large blooms for exhibition, for groups or for cut flowers, it is a mistake to allow the young specimens to remain very long in the small pots. These plants that have received a check at this stage of their growth show it later on, its effect being to cause a thinness of stem just above the soil in the pot. Subsequent re-pottings have improved the general condition of each plant and this is shown in the greater thickness of the main stem from 6in. and upwards above the soil level. It is a mistake to re-pot all the young plants on the same date as some root more freely than others and these should be picked out and dealt with first, so it means that some of the plants will need attention in this matter every week, where large batches of them are grown, till the final potting is finished. Good fibrous loam, two thrids, leaf-soil and old mortar rubble one third, form a suitable compost. A small quantity of rotted manure, horse for preference, and bone meal may be added to the mixture with beneficial results.

DISBUDDING PEACHES AND NECTARINES.

As regards general treatment these are alike, practically. The only difference—a very small one—is that nectarines will mature more fruits than peaches without any detriment to the tree. As a general guide, one peach per square foot should be left to mature and one nectarine to every square measuring 9ins. on each side, respectively. Where a tree is cropped equally all over it, there is no difficulty in so leaving the fruits; but some trees bear more young fruits on the upper than on the lower portion. In a case of this kind the right thing to do is to ascertain the number of square feet covered by the branches and so leave the required number of fruits on the peach and nectarine, respectively. I am referring to trees in a perfectly healthy state. Those not quite robust should not be cropped as heavily. On the other hand, it is sometimes desirable to crop very vigorous young specimens more heavily. The work of disbudding and thinning-out of young fruits should be done gradually, not all in one day. The final thinning of the fruits is done after the



stoning stage. When removing the young shoots care must be taken not to loosen any young fruits that are to be retained. *a* shows a shoot before disbudding; *b*, the same branch disbudded; *c*, a longer branch disbudded. The letter *d* shows buds that will bear fruits next year; *e*, a fruit on a short branch, to be removed; *f*, one to be retained; *g*, the fruit removed; *h*, the stronger one to be retained. On a longer branch, *i* and *j* show two fruits both to be retained, also an extra young shoot; *k* shows base of fruit that must not be loosened; *l*, a young shoot on old wood, to be removed; some shoots, *m*, must be stopped; the basal buds, *n*, often bear fine fruits the following year.

PRUNING BLACK, WHITE AND RED CURRANTS, AND GOOSEBERRIES.

Although these useful fruit bushes are grown in almost every fruit garden throughout the country, there is still to be found badly and even wrongly-pruned specimens in every district. The black currant bush bears the finest fruits on the young wood and the most promising bushes are those that resemble, after pruning, healthy clumps of thinned-out willows. The correct pruning consists of the thinning-out of the oldest branches and the retention of the youngest. At the base of many of the older branches small conical-shaped pink buds may be seen. If, when pruned, a few of these buds are retained, they will, in a year's time, become strong shoots with plenty of fruit buds on them. The second year these will be the fruit-bearing branches. Many strong stems grow directly through the soil and these are good shoots to retain. When cuttings are inserted the basal buds are left intact, but these are removed in the case of red and white currants and gooseberries. Red and white currants should have leaders shortened where extension of branch is desirable, and the young shoots growing from spurs freely cut back to within three or four buds. Gooseberries bear fruit on both young and old wood. The centres of the bushes should be kept open and all side shoots that are pruned should be cut back to a bud pointing upward to ensure more upright growing shoots each year.

SOWING SWEET PEAS IN OPEN BORDERS.

For early use—at home and for exhibition—the best flowers are those that are grown on plants raised in the autumn. All lovers of these charming flowers do not sow the seeds in the autumn, nor under glass in the spring, but in the open border. With the exception of pure sandy soils the ground, generally, has not been fit to dig or fork up till quite recently. Having decided as to the position for the rows or clumps, first clear away all surface weeds and rubbish, dry it and then convert it to ashes by burning in a slow fire. Keep these and other ashes dry for use in the pea trenches. Then make the surface black with soot, deeply dig the ground evenly all over. If possible open the trenches due north and south. Clumps should be at least 5ft. apart. Open the trenches 18ins. wide, 1ft. deep, removing the soil to this depth and placing it at the side of each trench. With the bottom foot of soil mix very freely rotted manure—horse manure for heavy, cow or pig manure for light soils. Failing these, use Wakeley's hop manure, which is an excellent substitute, also, old hot-bed manure and half-decayed leaf-soil if obtainable. These additions will fill the trench to within 6ins. of the top. A 3in. potful of dry fowl manure to each lined yard of trench will be highly beneficial if it is reduced to a powder and mixed with the soil. Drop the seeds 9ins. apart in a zig-zag line and cover them 1in. deep with fine soil. The soil left at the side of each trench will be useful for top-dressing mixed with super-phosphate, later in the summer.

GEORGE GARNER.

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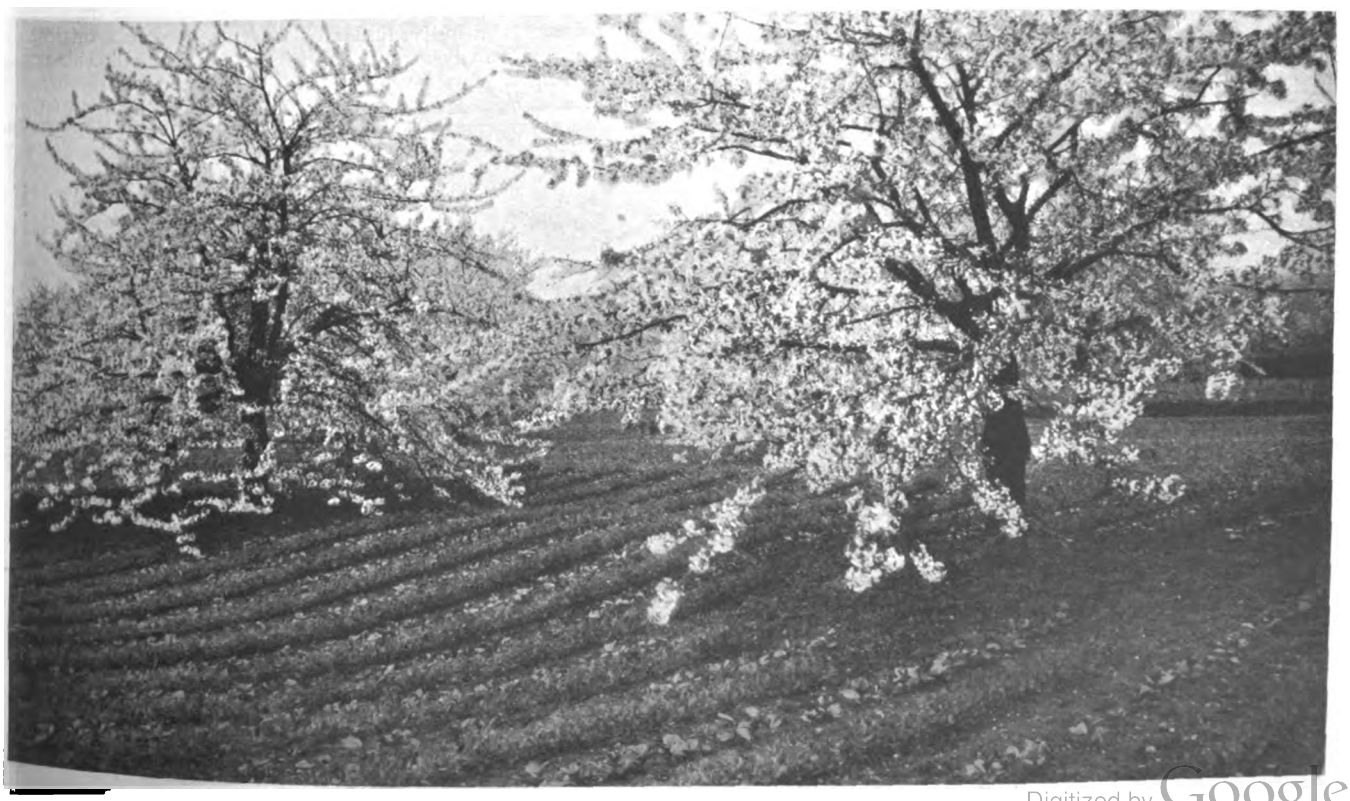
SPRINGTIME

EVEN in the most squalid of springs there is something to admire in flower, and no spring, however harsh and inclement it may be, is so devastating that it will remove all the blossom which pleases us year after year. The other day a few friends and I voted as to what flowering trees and shrubs we should grow in our gardens supposing that we were limited to six kinds. The only plant which everyone agreed was indispensable was a cherry of sorts. Several varieties were mentioned, among them Prunus Conradini and the ordinary double English cherry, but as long as it was a cherry we waived the question of variety.

I think that most gardeners would agree with us over this, for the cherry, probably more than any other tree or shrub, is symbolical of springtime, and that is a time of year when we like to be warned that summer and flowering time are approaching. Covered with masses of beautiful white to pink flowers standing out from their black sombre coloured and funereal branches, characteristically knotted and gnarled, they present a picture in our mind's eye that is rarely if ever forgotten. Not only does it gladden our hearts and create a warmth of affection for the trees, but it signifies an intention on the part of Mother Earth to fulfil her share in making provision for the future. Although the cherry has spread throughout the world, yet there is something about it that personifies an English orchard or an English home. And what could be more graceful! The trees in the illustration below, smothered in blossom and with a grace of form that cannot be improved upon, are growing in an ordinary orchard. They are not grown for ornament, and yet I doubt if any ornamental plant can excel them in beauty.

E. H. M. C.



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A SELECTION of PANSIES and VIOLAS

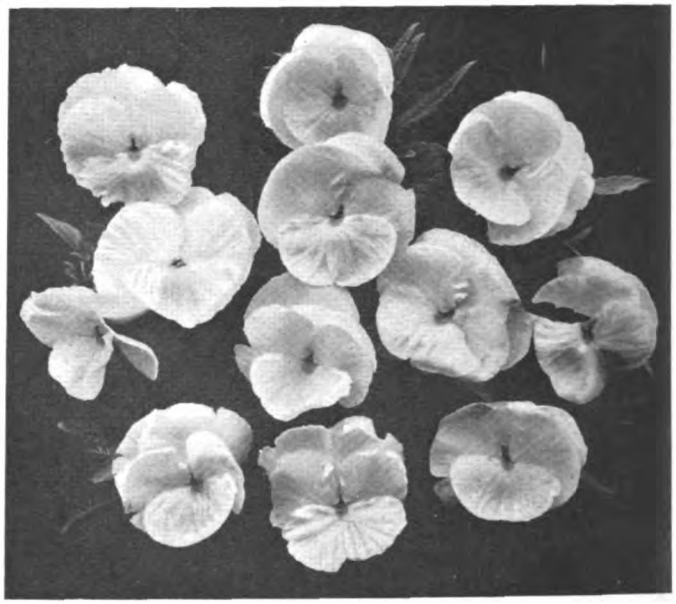
THERE seems to be a revival of interest in the culture of these pretty and useful little flowers. They appeal strongly to the town or suburban gardener who finds some difficulty in obtaining the best results from more exacting floral subjects. In the smallest plot, even if it lies within the smoke zone of a big city, pansies and violas can be grown.

Where conditions are more favourable they not only thrive but give a continuous display of bloom from early spring until the frosts come. A rich medium loam suits them best, and in those parts of the country where the climate is very temperate and rainfall above normal it is quite an easy matter to obtain good flowers. In Scotland and in some of the hilly districts of northern England first-class blooms can be grown with a minimum of trouble, and plants in districts that lie well above sea level are rarely troubled with disease. They are not widely grown in the south, but it has been proved that certain kinds can be grown successfully there, and there is no reason why the strongest of the bedding varieties should be excluded from southern gardens.

Pansies and violas should be grown in beds or borders where they receive the full benefit of the morning sun; but, if possible, they should be protected from the scorching effect of summer heat. Trees that are planted some distance away, walls or fences, will often provide the necessary shade; but where the situation is open it may be advisable to use artificial means of shading them in the height of summer. To plant them in a low-lying part of the garden, even if this be shady, is not a good plan, as in a wet season there are many casualties among plants in such situations.

A study of the structure of the plant will reveal two sets of roots, one that penetrates to a depth of five or six inches, and the other reaching out among the surface soil. The soil should be cultivated to a depth of a foot or more to enable the longer roots to have a cool run, and when the plot is being dug over it is a good plan to work in a liberal quantity of well rotted animal manure and bone-meal as sustenance for the plants throughout the season and a source of food supply when the surface roots cannot perform their functions during a period of drought. A mulch applied during hot weather is beneficial in tiding the plants over a dry spell, but unless they have a good foundation in the lower levels they cannot keep up a continuous display of flowers of the highest quality. If beds or borders have not yet been prepared this should be done without delay so that the soil has time to settle before planting time.

It is unwise to plant out too soon. March planting is quite early enough in the south; northern growers would be well advised to wait until April. Early planting sometimes results in loss of plants or withered growths as a consequence of late frosts or cold east winds. This is more noticeable in exposed districts.



WILLIAM BARR A FINE WHITE VIOLA WITH WELL SHAPED FLOWERS.

When planting out choose a day when the soil is friable and plant firmly. If the plants have been raised at home or obtained locally keep each rooted cutting in its surrounding ball of soil, as the young roots are very tender and must not be damaged or become dry. A well grown plant in autumn will often measure 6ins. in diameter, so that it is well to give as much space between the plants as is possible. If they can be planted a foot apart so much the better, as this also makes it easier for hoeing and mulching during the summer.

Bedding violas are specially recommended for those who desire a long and continuous display of bloom regardless of the size of the individual flowers. They have a tufted habit, generally a sturdy growth, and most of them will come through an ordinary winter unprotected. They are easily propagated from cuttings or by division of the old plants in the spring. Rooted cuttings after becoming established can be left undisturbed for two seasons, when they will give an early display the second spring and afterwards may be trimmed to preserve a neat appearance. Selections may be made in selfs, fancies, edged and bordered varieties or bronze shades. The latter should be protected from the fierce rays of the sun in the middle of summer, as they are apt to become scorched. A dozen reliable varieties might include Swan (the best white bedder), Lady Knox (cream), Royal Sovereign (pale yellow), Tangerine Harrison (deep orange), Moseley Perfection (deep yellow), Maggie Mott (pale mauve), John Quarton (light mauve), W. H. Woodgate (light blue), Improved Archie Grant, or Edina as it is called in Scotland (dark blue), Royal Purple, Pride of Darras (white with a broad band of purple) and Jubilee (dark velvety purple).

The exhibitor must look for larger-flowered varieties, for, with the exception of Moseley Perfection, the above-named are either small or medium flowered. During the past few years

AN EXAMPLE OF THE EFFECTIVENESS OF WELL FLOWERED VIOLAS IN A BED BY THEMSELVES.

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I have grown most of the leading kinds, both old favourites and newer introductions, and although personal taste plays an important part in the matter of selection, the following twelve should please the most fastidious grower: William Barr (white), John Adamson (orange self), Kathleen Condry (deep purple), Mrs. Andrew Stevenson (deep yellow with a heavy band of deep heliotrope on the side and bottom petals and a suffusion of the same colour on the top petals), Mrs. William Boyes (lemon yellow with a picotee edge of lavender), Jean Drummond (lemon yellow self), John Wood (one of the best striped varieties), Lily Stark (deep violet with lavender top petals), James Dewar (white with picotee edge of blue), Mollie Gibb (creamy white with picotee edge of heliotrope) Olive Harrison (primrose edged with sky blue) and Mrs. R. Beveridge (a distinct shade of lavender-pink).

Some of the exhibition violas, such as Sir Edward Grey and Master Stevenson, while being capable of producing fine individual flowers, are of too straggly growth to be useful for general garden decoration; but many of the newer, large-flowered type, such as John Adamson and Olive Harrison, have a splendid habit and can be used for bedding or massing if desired.

There is a type of pansy, known as the bedding pansy, of which Messrs. Dobbie and Co.'s richly coloured Bellfield is a notable example, which promises to be used largely for massing and bold colour effect. In this class there are now many lovely shades of bronze.

As a rule, pansies are more inclined to grow "leggy" and sprawl, but if they are used for garden decoration I have found that they are very effective if planted fairly close together and allowed to ramble at will, when the growths and flowers become intermixed in a sort of abandon that gives quite a brilliant and varied effect in the mass. The exhibitor who grows pansies, however, must be more orthodox in his methods. It may even be necessary to shade them, to restrict the flowering and to thin out side growths.

A dozen up-to-date fancy pansies might include Mrs. Andrew Frater (plum purple, sulphur yellow, old rose and magenta), Annie Beveridge (deep violet, terra cotta and lemon), Robert Beveridge (deep purple, white and magenta), Mrs. A. B. Cochrane (purple and cream), Jean Lister McKellar (dark purple and creamy white), Dr. McKinnon (plum, lemon and rosy purple), Mary Drummond (brown, deep yellow and crimson), Dr. Ogilvie (dark purple, white and violet), Nellie Cochrane (light purple, claret, white and crimson), John Greig (dark purple, crimson, canary yellow, light purple, violet and white), Mrs. A. Harrison (dark violet and cream) and Alexander Lister (plum, rose and white), an old variety, but one that is still very popular and one that gains the prize for the best bloom in the show more than any other. The new variety, A. R. Stevenson (claret, pale chrome, yellow and wine colour), is said to be one of the finest pansies of recent introduction, and it will probably prove to be the sensational novelty of the forthcoming season It bears the name of one of our greatest raisers.

NORMAN LAMBERT.

LILIUMS: PLANTING AND SOIL CONDITIONS

A FINE GROUP OF LILIUM CANDIDUM.

WITH the exception of a few Indian species, most of our cultivated lilies are hardy, especially with a little protection in the case of some American ones; losses during the winter generally resulting from damp, which is probably much more fatal than cold.

The cultivator of a choice collection of lilies under our climatic conditions is confronted with a difficult problem: for, during the summer months, a considerable amount of moisture at the root is essential for success, whereas in the winter this dampness will prove fatal. The grower of choice lilies is thus faced with the problem of providing conditions that will be more or less suitable for both summer and winter. Here we may take it for granted that suitable winter conditions are the more important of the two: and the most essential point is sharp and perfect drainage, which may be a possible disadvantage during dry weather in the growing season. This is not serious, as long spells of dry weather are not at all frequent, and the difficulty can be overcome by means of watering. I shall try to show that good winter conditions may be obtained by free drainage, without causing the bulbs to suffer unduly from dryness at the root during the summer.

In nature most species of liliums grow in association with other plants; it may be that shrubs, grasses or herbs, and the roots of neighbouring plants keep the soil in good mechanical condition. Here, I feel sure, is the clue to our failure to grow many lilies—and, indeed, many other plants—successfully, for they lack the association of other plants which help to keep the soil well drained and in good mechanical condition. Considering this, it is not surprising that we frequently fail with a choice lilium, a few bulbs of which are often placed in a bed or portion of a bed utterly devoid of roots, causing the soil to become water-logged during winter, with the result that the bulbs fail to make roots and ultimately decay. On the other hand, there are quite a number of good garden lilies that will succeed quite well in any good properly drained garden soil. For example, such strong-growing garden lilies as L. candidum, L. croceum, L. Martagon and its varieties, L. tigrinum, L. testaceum, L. Henryi, L. umbellatum, L. chalcedonicum

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and L. elegans. All the foregoing are loam lovers, and many failures with them are due to the fact that peat is used in the compost. Lilium candidum should be planted during August, while all the others should be planted as soon as the bulbs can be obtained; or, if stocks exist, replanting should be done as soon as the stems have partly dried up, some time during October being the most suitable, while the ground is still warm. If there is any suspicion that the planting sites are not well drained, the soil should be removed to a depth of at least 2ft., or even 2½ft., this to allow room for plenty of drainage, which should consist of 6ins. of clinkers or any small rubble. There is no reason why some soil should not be mixed with the drainage. Under these conditions healthy bulbs should come safely through the winter.

With sharp drainage one is faced with the necessity of watering during spells of dry weather, and if it can be arranged some system of sub-irrigation is undoubtedly best. In a small way this could quite well be done by inserting a length of small drain pipe at the side, or even in the centre, of a group of plants. Although this, under certain conditions may be desirable and necessary, especially where many choice species are grown, I do not in a general way consider it to be essential. Where the collection of choice species is large, it might be advisable to construct a special bed with underground perforated pipes for watering purposes; but, generally speaking, we must regard this as being beyond the resources of the average cultivator, and is only necessary in exceptional circumstances. I would, rather, advise the use of ample drainage in the form of rubble mixed with a little soil, 1ft. or even 18ins. below choice lilies, which will ensure sharp drainage during the winter months, and, what is of prime importance, will conserve moisture at the roots during dry weather; and by this simple method we achieve the two-fold object. During dry weather the surface moisture may be conserved by mulching with well decayed flaky leaf-soil; a mulch of this kind is especially valuable in the case of stem-rooting lilies. When drainage of this description is provided, it is surprising the mass of roots which will develop in it; and in this connection we have a parallel in the moraine or scree bed in the rock garden, where many small, choice, deep-rooting alpine plants can be successfully grown, whereas they are more or less failures when grown in ordinary soil.

Returning to the planting of our lilies, I would advise, when preparing the sites, that a hole from 2ft. to 2½ft. deep be made, varying the depth according to the strength of the species to be planted; 12ins. to 15ins. of the prepared drainage should be placed in the bottom of the holes, afterwards filling them in with prepared compost, which, of course, will vary according to the species; but a good medium loam, with the addition of well decayed leaf-soil and plenty of good gritty sand, should answer for most of the species in cultivation. This prepared compost should be trodden fairly firmly—I find it is a common mistake to leave it too loose, which results in its getting water-logged by moisture draining in from the firmer surrounding ground. Here I am assuming that the planting sites are being made in beds of dwarf shrubs, as in a general way they afford us the best conditions for success, since their roots help to keep the soil in good mechanical condition, as well as affording the young shoots shelter from cold cutting winds during the spring, and providing a certain amount of shade for the roots during the summer—all three important essentials for success.

LILIUM TESTACEUM IS MOST EFFECTIVE AGAINST A BACKGROUND OF TREES.

ONE OF THE MOST GRACEFUL OF LILIES, L. MARTAGON ALBUM.

The sites should be prepared immediately before, so that the compost is always in good working condition; the holes being filled up to within 9ins., 6ins. or 4ins. of the top, according to the particular species. For example, stem-rooting lilies should be planted deeper than species that do not produce roots from the stem; while large bulbs, naturally, should be planted deeper than small ones—although there are exceptions to this rule. For instance, in the case of L. candidum and L. giganteum the top of the bulbs should be little more

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than covered; on the other hand, bulbs of L. auratum and L. Henryi may be planted 1ft. in depth.

Having put in the prepared compost to the required depth, taking care to tread it firmly, a layer of sharp gritty sand should be added, pressing the bulbs into this, and a covering of sand given; the holes should then be filled in slightly higher than the surrounding soil, as the fresh compost is sure to sink a little, and pressed fairly firmly, afterwards marking the sites with a short bamboo cane.

When preparing the compost I consider it is an advantage if a quantity of small stones are mixed with it, as they conserve moisture and assist drainage. Some cultivators when planting choice lilies place an inverted flower-pot underneath the bulbs, while others lay them on their sides to prevent wet lodging in the scales. When proper drainage is provided, I doubt if such methods are necessary, but that is a matter that rests with the individual, and when dealing with this fickle and beautiful race of plants no possible means of securing successful results should be neglected.

Certain Californian species, such as L. pardalinum, L. Parryi and L. Humboldtii, are often spoken of as swamp lilies; the beginner should not be misled by this, for no lilium is likely to be happy or live long in swampy, stagnant conditions. In their native habitats the species in question may grow in moist situations, such as streamsides, etc., but it is certain that the bulbs are always high and dry, even if their roots do reach down to the moisture underneath, and that this underground water is nearly always moving, and not stagnant. In any case, we must remember that there is a vast difference between natural conditions and what we are able to give the plants under cultivation, for, as I have already hinted, plant association in nature plays an important part in plant growth. Again, it does not always follow that if we try to reproduce natural conditions in the garden that success will follow in the cultivation of plants. If we take L. pardalinum as an example: one is generally advised to give it plenty of peat in the compost, whereas it really succeeds best and increases freely when grown in ordinary well drained loam, with the addition of some well decayed leaf-soil. In nature, liliums cover such a wide geographical range and grow under such varying conditions that it is difficult to lay down any definite rule as to local conditions. Although the latter play an important part in the successful cultivation of any particular species, good drainage (and shade at the root) is of chief importance. Also, at the same time, under our climatic conditions, they can do with full exposure to the sun: with the exception of L. giganteum and L. cordifolium, which are woodland lilies and—in the South, at least—require a certain amount of shade, although in Scotland they do splendidly out in the open with full exposure to the sun.

J. COUTTS.

ANEMONES FOR BEDS AND BORDERS

IN ANY GARDEN, ANEMONES, WITH THEIR VARIETY AND WEALTH OF COLOUR, ALWAYS FORM ATTRACTIVE SUBJECTS.

THE name anemone recalls at once to the minds of many the vision of a woodland or copse in April with the sun shining through the leafless trees on to a snowy carpet of dainty woodland anemones gently waving in the breeze. These anemones are fragile, but among the whole genus (often called the windflower) there are cultivated species suitable for the wild garden, a most valuable group for the rock garden, and a number of sturdy members which are very effective in beds alone or in the mixed border. The size and form of anemones vary from the small tufts of A. Pulsatilla to the tall heads of A. japonica, which are borne on stems nearly 4ft. in height. The colours in anemones are countless.

Although border anemones are long established favourites, within the last thirty years some of the species have been improved to such a great extent that a much larger number are being grown. There are two distinct branches in the border types, the spring-flowering kinds and those which bloom in the autumn. Among the early-flowering type the most important species are the tuberous-rooted A. coronaria, A. fulgens, A. alpina, A. sulphurea and lastly, A. sylvestris. The chief autumn-flowering anemone is A. japonica and its many varieties, which are all herbaceous plants. Of all these A. coronaria is the largest section and it is upon this group that the efforts of the specialist have been concentrated. From the wild species, the poppy anemone of Asia Minor, various strains have been produced by selection, for example there are the "Caen" type of French origin, the double "chrysanthemum flowered" race, the double Nice anemone, and the most recent of all, the St. Brigid strain. The latter are semi-double, and all are in a great variety of beautiful colours. There are single as well as double kinds of the "Caen" anemone.

A TYPICAL ST. BRIGID ANEMONE.

The poppy anemone and the various strains thereof thrive in warm deep soil, but they dislike cold and damp during the winter. Some growers hold that the cold wetness of winter is very liable to injure the plants and that the tubers should be lifted after flowering and stored until the planting time. On the other hand the disturbance of the roots is more likely to cause poor results than the effects of damp, and the best method is to plant the tubers in really well drained soil and leave them untouched, unless, of course, the soil is particularly heavy.

The St. Brigid anemone is worthy of good treatment and if the cultural details of this are mastered, any of the other types of poppy anemone will flourish exceedingly when grown in a similar way. Their great variety of colours and their robust, sturdy growth are two factors which make people anxious to grow them. The latest forms of St. Brigid anemones are vastly improved and vary from deepest crimson to purple, brilliant scarlet, delicate blue, pink, mauve and violet to almost white. Some are distinctly

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zoned with white, red or rose. All the shades blend harmoniously together and of all the anemones the St. Brigid look perhaps more effective when planted in beds by themselves rather than intermingled with other flowers in the herbaceous border. The flowers are borne on strong, erect stems and the broad petals form a shallow cup.

The secret of success with St. Brigid anemones is to give them firm, well drained soil and plenty of moisture during the growing season. Firm planting is essential and the roots should never be disturbed with any tool; when weeding is necessary it must be done by hand. These tuberous-rooted anemones are propagated by means of seed or division of the tubers. The tubers are planted in October or November and again in spring and later. If some are planted now there will be a fine display of flowers from early summer onwards. By planting at different intervals a succession of bloom is obtained. The most suitable

ONE OF THE BEST AUTUMN FLOWERING ANEMONES, A. JAPONICA CRISPA.

soil is friable, rather heavy loam. If the soil is very heavy clay it should be artificially drained and a liberal dressing of sand given. Well decayed cow manure and chopped-up old turf greatly improve the beds, and should be well mixed with soil to a depth of 15ins. to 18ins. when the beds are dug. Leave the beds for a short while to settle, and then just before planting break up the surface and rake level. The tubers are irregular in shape and, when planting, the growing knob should be placed upwards and the tuber laid flat at the bottom of the hole. If in doubt as to which is the growing point, plant the tubers sideways and they will automatically right themselves. There are often the remains of root fibres on the underside which are a help in recognising the correct sides. The tubers can be divided, and each piece will grow provided it has a growing point. This is not often done except for breeding purposes. Before planting make the bed thoroughly firm, and, by means of a thin stick, drill holes exactly 3ins. deep and 4ins. apart; drop into each a root, then fill up with soil. When the whole bed is finished it should be made firm by pressing with the back of a rake or rolling with a light wooden roller.

After autumn planting some growers cover the beds with leaf-soil as a means of protection, but this is not necessary in most districts. If the flowers show signs of developing before sharp frosts have ceased, a light covering can be given. St. Brigid anemones planted during October and November bloom from the following April, those planted in the spring flower from early summer onwards according to the season. Flowers are produced for several years if the soil is particularly suitable, and, as it has already been said, the tubers should not be disturbed until they appear to be worn out or the ground needs replenishing.

During the growing season these tuberous anemones should have a mulch of well rotted short manure to keep the roots cool and moist. If this is not sufficient and the roots appear to be dry, copious supplies of water should be given. Mulching, watering and hand weeding are necessary during the summer months, and until it is time to renew the beds a brilliant array of flowers will be obtained with a minimum amount of labour.

When the beds begin to show that they need replenishing, preparation should be made for increasing the stock. This can best be carried out by purchasing some more tubers, for unless seedlings are carefully raised vigorous tubers are not formed, and thus it is more satisfactory to buy from some reliable grower.

Other species can be raised from seed sown as soon as it is ripe in July, and seed from only the best coloured plants should be used. A bed in a warm situation should be well prepared several weeks before sowing in the same way as advised for the permanent beds, but a larger proportion of well decayed cow manure thoroughly incorporated with the soil produces a more suitable compost. The seed is encased in a woolly covering which causes it to adhere together, making thin and even distribution some what difficult. To overcome this, mix the seed with slightly damp silver sand and rub between the fingers, by which means the seed is separated and can be scattered easily. Rake and make the bed firm before sowing. The seed should be sown in drills ½in. deep and 10ins. apart or it can be scattered broadcast over the bed. When the sowing is completed cover lightly with some fine soil and give a little water if the ground is dry.

Until germination has taken place, some means of shading the beds is necessary. Tiffany, sheets of newspaper or evergreen shoots can be used. When the seedlings are up, which will be in about one month's time, remove the covering and give a watering, and leave them in the seed bed until the following year. They will bloom in April and directly the foliage has died down and before second growth has started they should be lifted, dried and stored until they are planted in their permanent quarters in October.

A. fulgens, the vivid scarlet windflower can withstand frost, but not stagnant moisture. It needs a rich, well manured loam in a position in partial shade. Its beautiful scarlet flowers look equally attractive in a mixed border or in a little nook on the rockery, while in a bed by itself A. fulgens makes a wonderful effect. The most satisfactory way of propagation is by division of the roots in early autumn, but it can also be planted in February and March.

The alpine windflower, A. alpina grows to a height of nearly 2ft. Its creamy white flowers are purplish outside and division is the surest way of propagating it. Seed is the best method of increasing the variety Sulphurea of A. alpina and it needs a warm well drained soil and plenty of moisture during the summer. Both of the last two anemones bloom during May.

The pure white snowdrop anemone, A. sylvestris, in any border is a delight to the eye. Its delicate drooping flowers are borne on stems 1½ft. in length in May and June. This is suitable also for shady places and it should be increased by division.

A. japonica is known to all; its handsome white or rose-coloured flowers are seen during the autumn decking the borders, the shrubbery or the woodland of many gardens. It is an herbaceous perennial and once it is established, if left untouched will go on flowering for some years, especially if the soil has been well dug and given a liberal dressing of manure before planting. There are several excellent varieties, such as Queen Charlotte, rose coloured and darker outside the petals; Lady Ardilaun, a pure white single; Alice, silvery pink and semi-double; and alba, a pure white form of A. japonica. They vary in height from 2½ft. to 3ft., and continue blooming until they are cut down by frost in late autumn.

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THE CULTIVATION OF THE GLADIOLUS

BY MAJOR G. CHURCHER.

THE SWORD LILIES INTRODUCED FROM SOUTH AFRICA ARE AMONG THE FINEST, HARDIEST AND MOST FREE FLOWERING SUBJECTS IN OUR GARDENS, WHERE THEY SHOULD FIND A CORNER HOWEVER SMALL.

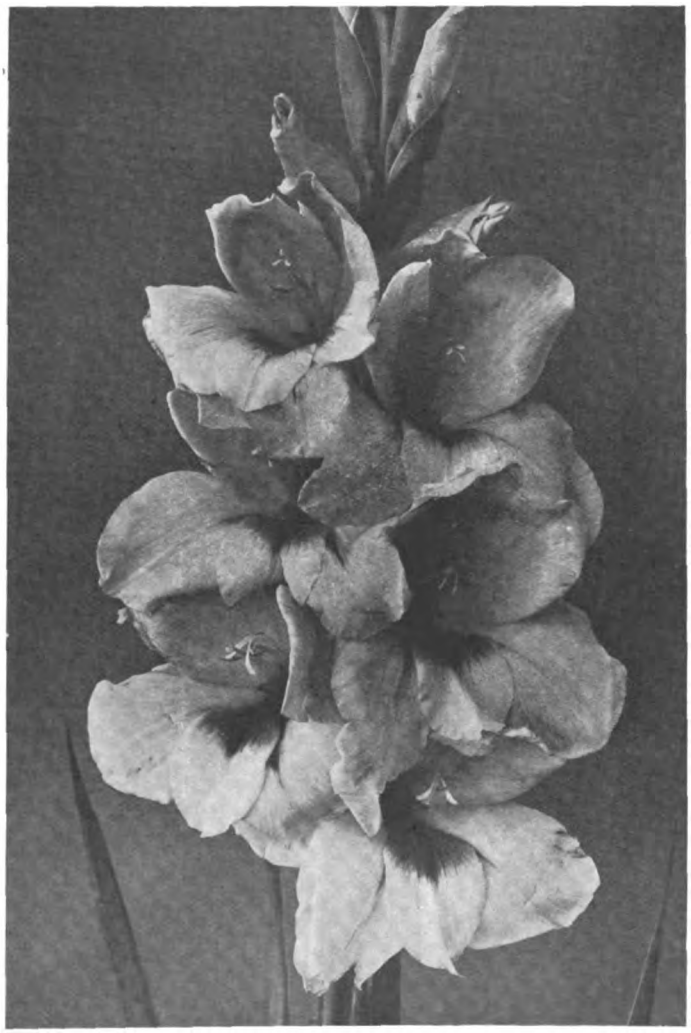
THE gladiolus has been well described as the most decorative and most easily grown of all summer-flowering bulbs. Certainly there are few flowers that can vie with it for decorative use and lasting qualities, when cut for the house. Yet, like many other plants, it repays you for a little extra care and attention.

Those who have had some experience with the flower will have taken care to see that the proposed beds have been well and deeply dug and any necessary manure applied during the winter; and have, no doubt, been looking at the bulbs recently with a view to getting them back to Mother Earth.

The bulbs themselves have, by the indication of rootlets shown that they too think it is getting near planting time. The mild weather has, no doubt, been the cause of this early tendency to grow. It might therefore be as well to remind those who have not had much experience with the gladiolus, of the necessity to unpack the bulbs as soon as received and open the bags so that the bulbs may have plenty of air. There is one exception to this rule, and that is in the case of bulbs coming from Canada and the U.S.A. It is just as well to let the package remain in a cool place for twenty-four hours before unpacking, and do not allow the bulbs to be subject to a rapid rise of temperature.

Let us now assume that the beds have been properly prepared and the soil is in a workable condition, the bulbs may be planted, according to size, from 3ins. to 8ins. apart, having regard to the space to be filled. Bulbs of different varieties vary greatly in size, without in any way affecting their blooming qualities. Large flat bulbs are generally old and of little value for the production of large flowers. Judge by the depth of the bulb, rather than the width. If planting in rows, after many experiments in various distances, it will be found that 2oins. between the rows is the least width to give good results. This width enables the soil between to be kept well cultivated. Should space be valuable, plant in double rows in the same way as you would plant broad or runner beans, leaving the full width of at least 2oins. between the rows. The depth of planting must be governed by the size of the bulb and the soil conditions. A sandy loam is more suitable for deep planting than a stiff soil. Deep planting helps to overcome the need for staking.

Successive plantings used to be advocated for prolonging the blooming season, but there is such a difference in the time required by the different varieties to attain their full growth that a succession of bloom can be obtained by selection. This will be quite understood when it is known that the time varies from 60 to 120 days. If, however, it is desired to have one particular flower over a long period, successive plantings from ten to fourteen days should be made.



G. BLERIOT CARRYING A LARGE SPIKE OF BEAUTIFUL ROSE TINTED FLOWERS.

The gladiolus likes water, provided good drainage can be assured, and good cultivation will be of more benefit than artificial watering. Keep all weeds down and the top soil loose and in a mulch condition. If watering becomes necessary always follow with the hoe before the surface has had time to cake.

Artificial manures are best given in liquid form and when the ground is moist. Lime improves the colour of the foliage and the bloom.

Some people think the gladiolus is too stiff for use in beds, but I would suggest that very effective beds may be had by planting a groundwork of antirrhinum with the gladiolus coming up between. Most of us have grown beds of yellow or blood red wallflowers with red or yellow tulips showing above. The same idea of colour combinations may be worked out with the gladiolus and antirrhinum. Heliotrope can also be used as a groundwork with one of the yellow or white varieties of primulinus. In borders good broad stretches of colour should be made against a background of delphiniums and Michaelmas daisies.

The number of varieties has greatly increased during recent years and some confusion in the names has been the result. Some growers, however, are trying to clear away this bugbear. Two or three years ago I bought Highland Laddie as a new variety and this year I find Mr. Kunderd has a new introduction of that name with the following note:

"By mistake the name of Highland Laddie became attached to my old variety, 'Red Copper.' I have purchased the name from my friend Mr. McKibbin and given it to this very beautiful new pink."

At one of the meetings of the R.H.S. last year I was attracted by a flower on one of the stands, but the name Bleriot did not appear to me correct. I asked the attendant and I was assured that it was correctly named. However, I was not convinced that it was like the flower I grew under that name and on looking up my notes I find that my Bleriot was raised by Vilmorin and received an award of merit in 1914. It was not a particularly good doer, but it flowered in 1916, 1917 and 1918; the colour description was carmine lake, overlaid with plum violet, small blotch of creamy white. The flower illustrated is thus described in Messrs. Bath's catalogue: Apricot rose, with orange throat, lovely colour, large flower, good spike.

Many more instances of duplicate names might be given, but the above illustrations will be sufficient to remind readers that in taking notes at shows care should be made to add to the names the colour descriptions of the flowers, as comparisons can then be made.

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PLANTING THE WATER AND BOG GARDEN

(*Continued from page* 144.)

WITH THE EMBELLISHMENT OF THE SIDES OF LAKES AND PONDS IN THE GARDEN BY THE JUDICIOUS SELECTION OF SUITABLE PLANTS, A NEW CHARM IS ADDED TO THE GENERAL LANDSCAPE EFFECT WITH A MINIMUM OF TROUBLE.

OF all the herbaceous plants that beautify the water garden none offers quite the same attractions as the astilbes and spiræas.

The astilbes (goatsbeard) alone are becoming a formidable list of plants. There are several distinct types, and most of the remainder are hybrids between these. They love the water's edge, where they can get their roots right down into the wet mud in summer. Nor do they object to this saturation in winter. The finest species are A. Davidii, a really beautiful plant if it can be isolated from any other colour, but it is of that shade of bluish purple (the minute anthers are bright blue) that maddens the colour sensitive when placed in juxtaposition with any other colour. A. grandis is perhaps its safest companion, being white. A. rivularis and an improved form known as A. r. major are also white and bold, graceful plants with nothing quite equal to them for the extreme water's edge. The old well known A. chinensis with its slender pale pink plumes completes the list of the necessary types. All the remainder, of which their name is legion, are hybrids between the above. Cream Pearl, Princess Mary, Salmon Queen, Vesta, Rubella, Siegfried and others, all varying shades, white to the deepest salmon pink and some nearly approaching purple. All are worth growing.

The spiræas have occupied the hybridist less than the astilbes, and the available list is therefore more limited. No water garden should be without the glorious crimson S. palmata or its pink form, S. palmata elegans. There is a white form also for those who desire it. Another indispensable is S. venusta and a bolder habited deeper pink form called S. venusta magnifica. The distinction is so marked between these two that I have sometimes wondered whether the latter has any right to pose as a venusta at all. It suggests S. gigantea in its habit of growth. S. gigantea (Kamtschatica) is a noble species for the large water garden, but is too rampant for small areas. It will grow 8ft. high and in a very short time as much through. S. Aruncus is a very fine and graceful plant. S. filipendula plena (double dropwort) and the double meadow-sweet, S. Ulmaria fl. pl. completes the list.

About equal in order of merit with astilbes and spiræas for the purpose we are discussing are the moisture-loving irises, and the queen of the race for this purpose is undoubtedly Iris Kæmpferi, better known as the Japanese iris. Having made that statement I feel constrained to qualify it. All the varieties of I. Kæmpferi succeed well in rich, damp soil, but permanent moisture is not really essential to their well-being. During the growing season they insist upon plenty of it. During the dormant months they are better without too much wet at their roots. They like a situation where they can get their toes down into the cool moisture in the hot days of early summer. They are happiest if the water recedes from them in winter. There are nominally about seventy or eighty varieties of them, actually there are about twenty-five or thirty distinct sorts that are worth growing separately. The colours range from the purest white to the deepest violet-purple.

After Iris Kæmpferi come a whole range of species, all of which like more or less moisture and some revel in wet conditions. The largest class of these is the Siberian subsection of the beardless irises. Of the true Sibiricas, Purple Emperor, Perry's Blue, Orientalis Snow Queen and a variety named last summer (on account of its colour) by Mr. E. A. Bowles Kingfisher Blue, are the best. Closely allied to these is the somewhat variable, so far as colour is concerned, Iris Delavayi. The stock at present in commerce is the produce of seeds sent home by Wilson, in which there have always been variations in colour, and to some extent in form. The best of them is a wonderful and richly coloured violet, known as I. Wilsoni, one of the species that only gives of its best under moist conditions in the soil. I. Bulleyana, lilac and purple, and I. chrysographes, deep red-violet with golden veins, are others of value in this group.

PRIMULA SIKKIMENSIS, A SOFT LEMON YELLOW.

The sub-section Iris Spuria does not insist on moisture, but succeeds in damp ground admirably. The same remarks apply to ochroleuca (orientalis), a giant ivory white; aurea, golden yellow; Monnieri, primrose yellow, all these three growing 4ft. to 5ft. high in rich damp soil, and the hybrids Mon-spur and Mon-aurea are equally satisfactory.

I. lævigata, a Japanese species that was for many years credited with the parentage of the Kæmpferi race, is a beautiful violet-flowered plant, and revels in bog land, as does a beautiful form of it, alba purpurea. By the way, there are two forms of this plant in existence, that recognised by the Royal Horticultural Society some years ago as "Colchesterense" being quite distinct and infinitely the better plant.

Iris fulva, a reddish copper-coloured plant, I have known make its way into a wet ditch and flower beautifully.

There are other irises for the waterside, but those enumerated should suffice as a nucleus, and the only other I will mention is pseudacorus, the wild flag of our English waterways, which will grow admirably in the water, but if allowed to do so will take possession of all the area in its neighbourhood. There is a variegated form of it that is very effective by the waterside and should always be included in any planting. Many people do not care for variegated plants in the ordinary way, but this is one of the exceptions that can be admitted with no fear of its offending in any form. This also applies to another variegated form of a native species, I. fœtidissima aurea.

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So far I have only mentioned summer-flowering plants, the iris beginning in late May or early June and flowering until the middle of July. Astilbes and spiræas begin in late June and flower on through July and August. Lilies, late June, July and August.

The primulas, however, will fill in the space during the earlier weeks, and no genus offers such a wealth of brilliant colour. First there is Primula rosea that will remain submerged during most of the winter and then thrust up its dainty pink flowers as soon as the water recedes and the sun shows itself in the spring. This is followed closely by P. denticulata in mauve and lilac shades, some modern seedlings being deep rich purple. P. kashmiriana is a form of this species with flower-stems and the ribs of the foliage much powdered with fine silvery dust or meal, and has been known to grow 2ft. high and as much across. P. pulverulenta is perhaps the most telling of the whole species, with its giant whorls of deep crimson flowers on stems 3ft. high, in May and June. The leaves and calyces in this also are beautifully coated with farina. P. Helodoxa, introduced from China by Forrest some years ago, is a wonderful plant with bright golden yellow flowers. It made its *début* with acclamation, and was hailed with delight as a promising parent and a permanent addition to the bog garden. So far it has proved neither permanent nor parentally inclined. I have known of many attempts to cross it with other species, but none that has been successful has come to my notice yet, and yet if one could only get it to cross, what a wealth of beautiful forms might emanate from the results!

Primula japonica is a rampant grower where it does well, and has produced, in addition to its own crimson, many variations of colour, some of which are better than the type, many are inferior and a few are of a negligible attraction. P. Beesiana, purple, and P. Bulleyana, orange, are two other Chinese species that must be included. P. sikkimensis, with its tall, graceful stem and soft yellow flowers, is always welcomed.

And now what shall I say of the numerous hybrids, pulverulenta ×, Cockburniana ×, Bulleyana ×, Beesiana × and all the other crosses. They are exceedingly beautiful, many of them, but it is folly to mention by name plants that may only be a memory when these lines are in print. Some few are, shall I say, partially perennial, and these may be propagated true. Many are biennial, and these can only be raised by seed. The result is that many have been named and in about the second or third generation have ceased to exist, as they produce every imaginable variation.

The primulas bring us very near the water's edge, so while here we may as well notice other plants that like a similar position. Such are the calthas (marsh marigolds), of which the two best are the old Caltha palustris fl. pl. and the larger-leaved, bolder-habited C. polypetala, Both grow well in shallow water or along the wet banks, and their golden glow is very valuable in the early spring.

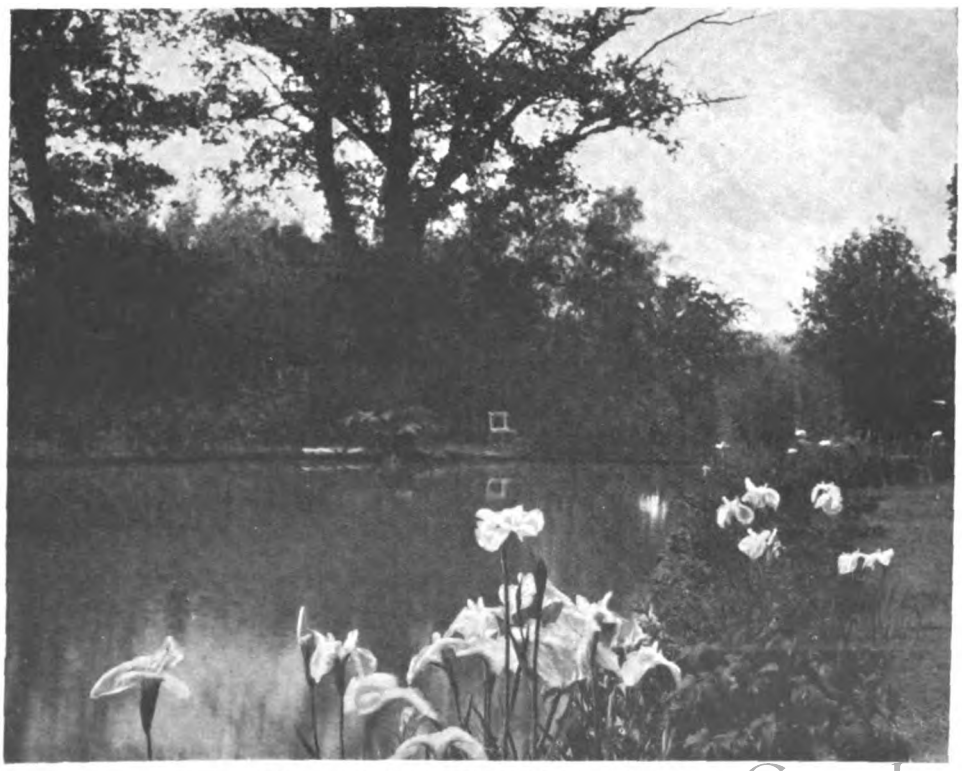
The marsh musk, Mimulus luteus, and hybrids between this and M. cupreus are invaluable, as they flower throughout the summer, and common as M. luteus is, I know of no finer combination than its pure yellow mingled with the light blue of the water forget-me-not (Myosotis semperflorens) at the water's edge. Polygonum bistorta, a pretty pink moisture loving knotweed, is another desirable plant. Indeed, all the polygonums are happiest in moisture. Astrantia carniolica (masterwort) also likes the water's edge. Epimediums, for the beauty of their foliage as much as for their dainty flowers, should be planted freely as a carpet to other plants. The lythrums (purple loosestrife) give a glow of rich purple or deep rose late in the year that mingles charmingly with the earlier changing autumn foliage in the water garden. Lysimachia (yellow loosestrife) in several species are useful, but should not be planted too freely, as they are certainly somewhat aggressive, a remark that applies to the purple loosestrife also. Pimpernella magna rosea (the Burnet saxifrage) with its umbels of rosy flowers is a good late summer plant.

All the ragworts, or senecios, have bold, handsome foliage as well as large showy flowers. S. Clivorum is worth planting for its foliage alone, but when covered with great golden flowers is telling indeed. S. japonicus (syn. Erythrochaete palmatifida) is equally beautiful and grows taller. S. tanguticus is better for foliage than for flowers.

GEO. DILLISTONE.

(To be continued.)

ASTILBES IN THE EVENING LIGHT.



IRIS KÆMPFERI BY THE WATERSIDE.

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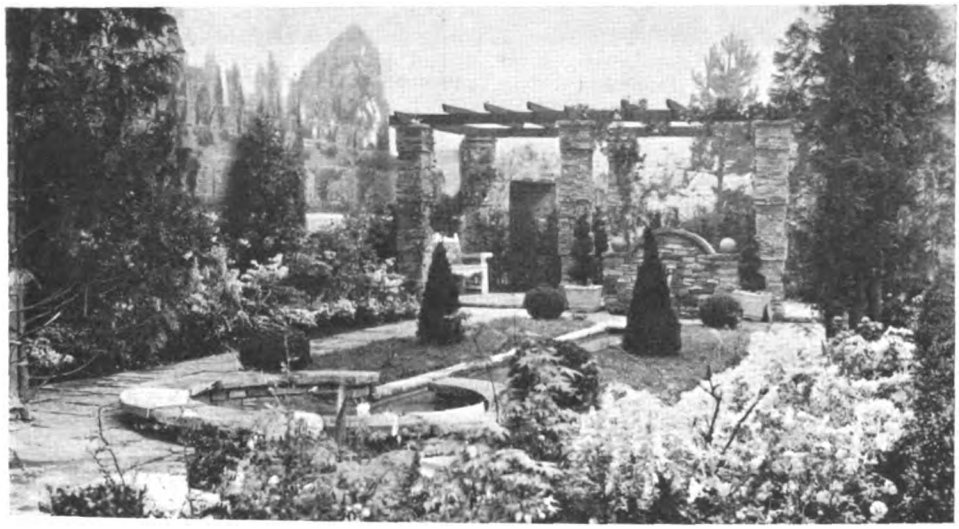
THE GARDENS AT OLYMPIA

IN this year, at the Ideal Home Exhibition, if not before, the nurserymen who lay out gardens have certainly excelled even their efforts at Chelsea. Naturally, at Olympia they know that they are not hampered by the weather, and so they can allow themselves a certain freedom of action; on the other hand, they have here nothing but a concrete floor to work on. The standard at Olympia has been improving every year, and this year, on the whole, it has reached a height which it would be hard to better. The only criticism that can be made is that in one or two cases the plants have been packed too tightly together in the beds. A realistic garden is being aimed at, so why crowd the plants to such an extent that they could never exist in reality in such mass formation. It is true that the appalling season has reduced plants in flower to a minimum, but overcrowding is worse than too sparse planting, for in the former all plants lose their individuality, which should only be the case in annuals and a few exceptions in shrubs and herbaceous plants.

Of the more ambitious by far the most effective lay-out is the garden designed and made by Messrs. Carter. This represents a formal Riviera hillside garden and, is probably the best garden that has ever been staged at an exhibition or show. In the making of this garden Messrs. Carter have gone to an immense amount of trouble and expense; as an example, over 150 loads of earth have been carted into Olympia for this one garden; but a little examination will show that, given a slope and leaving out the garden house, such a design would not be expensive to execute, while its effectiveness is undoubted. At the back is a terrace, on which are flowering azaleas and flowering cherries like Prunus triloba, while on the sloping sides are planted conifers of various kinds. Below the top terrace is a second one, which is made on a curve. In the middle of the curve is a circular pool, with a many-sprayed fountain, which is surrounded by hybrid Primula malacoides. The overflow from the fountain splashes into a formally designed tank at the base, while in the immediate foreground are groups of daffodils flowering in turf. The beauty of this garden is the way in which the actual terracing around the central theme of the fountain gives way to the slope of the bank in the most natural manner possible. On the slope on either side of the central terrace are planted further groups of azaleas. We have nothing but praise for the general lay-out and planting of this garden, and it reflects great credit on Mr. Bard and his staff for producing such a fine exhibit. Messrs. Carter have also designed Messrs. Lyons' Japanese tea-garden, but this is more a conventional design, although quite effective.



THE STRICTLY FORMAL GARDEN OF MR. G. WHITELEGG.

A RIVIERA HILLSIDE GARDEN AS DESIGNED BY MESSRS. CARTERS'

Another effective garden is that of Messrs. Cheal. Here the design is quite conventional and formal, but the result is excellent. In the centre is a rectangular plot with a stone path running up the middle and four beds of different-coloured hyacinths in bloom. Surrounding this plot is a narrow border devoted to low-growing shrubs such as skimmias, Andromeda calcyculata nana, and azaleas, among them A. Ribiera with semi-double tubular flowers of a blush white. This belongs to a group of azaleas that might be more often grown in gardens. This border in turn is backed by a row of yews, while at the back is a small terrace on which are also planted shrubs like lilacs and Viburnum Carlesii. This is a type of garden that is particularly well suited for small areas. The central beds can be filled several times during the season, while the shrubs can be so selected as to give the maximum amount of colour throughout the year.

Messrs Allwoods' are showing a novel design for a carnation and pink garden where the maximum amount of effect can be given with the minimum amount of labour. This is composed of twin lines of double banks, each surmounted with a low wall. These banks have a very moderate slope and have beds cut in them for carnations and pinks. The result of this gentle slope is that the whole contents of the bed can be viewed from the right angle of vision. We cannot remember ever having seen such a design before.

Of rock gardens we consider that Messrs. Maxwell and Beale's is the most effective but is closely followed by that laid out by the Orpington Nursery Company. The latter has an advantage, for it is laid out at the side of the hall, and thus has a background; while the former is in the middle and has to be a complete entity. Messrs. Maxwell and Beale's exhibit consists of a small stone-flagged court with tulips in beds, a terrace of untrimmed stones planted on the top with polyanthus and a very naturally planted rock garden at the back. It is not overcrowded, and the groups of erica, primulas and so on are very effective. The Orpington Nurseries exhibit an alpine meadow with a little stream and rocky pools. The central theme of this exhibit is heather, plants of which are scattered promiscuously in the grassy levels. A background of pines and silver birches lends a realistic touch to the scene.

A small rockery populated by dwarf shrubs, primulas, mossy saxifrages, Muscari Heavenly Blue, giving a fine blend of colour, is one of the features arranged by the Central Garden Supplies, Limited. The other part of the exhibit consists of two or three beds filled with early-flowering shrubs such as Forsythia intermedia and Prunus triloba, which are mingled with the brilliant colours of hardy azaleas and Rhododendron præcox. A new idea in window-boxes is also shown by this firm. These could be termed portable rock gardens. They can be made in any shape or size to suit all windows and crannies. They

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are made of wood which is painted a remarkably true stone colour, and are to be had either lined with zinc or unlined. When filled with dwarf plants they have a very attractive appearance, and will give excellent service for a number of years even without a lining of zinc. From a decorative point of view they will prove of value in a house with many windows and odd corners.

Mr. George Whitelegg has fully attained his object in presenting a most realistic garden with a simple and effective yet formal design. There is nothing lavish or ornate in the design, with a pergola at one end, through which one catches a vista of a water pool with a fountain at the other end. On either side there are paths bordered by beds of early-flowering shrubs and hardy azaleas. A fine colour effect is obtained by the free use of red dwarf azaleas intermingled with taller plants of the brilliant lemon yellow Anthony Koster backed by evergreen shrubs such as cupressus and skimmias. The other bed contains some fine plants of Viburnum Carlesii of an ideal height and in full flower. It is undoubtedly one of the most attractive species in the genus, and visitors will realise its beauty when planted in a border, especially when it is allowed full play to exhibit its individuality, as in Mr. Whitelegg's exhibit. The full effect of this garden is obtained through the judicious arrangement of the shrubs and flowers and the formal design in the lay-out of the paths and beds.

An essential feature in any English garden of any extent is that part devoted to roses, and one always looks for its representation at an exhibition. At Olympia one is not disappointed, as a rose garden, complete in every essential detail and laid out to full size, is designed and exhibited by Mr. Reginald Winder. A series of terraces leading down to the centre of the garden form the chief feature. This, while being simple, secures shelter without the use of high screens. The beds of roses are kept in position by means of low brick retaining walls, which lend a pleasing touch of colour and should prove handy in providing a nook for creeping and trailing plants which will prove an added joy in spring before the roses are out. The main paths are of red brick, into which formal patterns of cobble are set, the whole arrangement being attractive and serviceable.

The scent of violets is always pleasant, and when tastefully arranged, as in Mr. Baldwin Pinney's exhibit, they provide an attractive feature. Beds of primulas and violets are set off to advantage by stonework and quaint figures supplied by the Leckhampton Quarries Company, Limited.

A MINIATURE ROCK GARDEN IN A WINDOW-BOX.

The St. Brigid strain of anemones is coming more into favour with the public these days, and Messrs. Reamsbottom's exhibit will do much to increase the popularity of these blooms. When planted out in formal beds, as this firm show, few flowers can compare with them for wealth and variety of colour. In addition, they are excellent for cut-flower purposes.

Messrs. Russell of Richmond show a choice selection of early-flowering and forced shrubs, such as camellias, acacias, azaleas and prunus, bordered by Primula The Jewel and the Lingwood variety. The exhibit loses much of its effect by being overcrowded and situated in a corner. It is always the tendency to crowd much into a little space, with the result that the plants lose their individuality.

In the centre of the hall, a garden of formal design is laid out by Clayton and Hammond, Limited, designed by Miss B. Colvin. A pool in the centre, with four plants of Skimmia japonica in fruit, with at one end two beds of bright-coloured primulas, add a certain attractiveness to it.

A moorland scene in the form of an alpine meadow with a pool nestling among banks of rocks forms the exhibit of Captain R. Crewsdon Day. Stretches of Cumberland turf with crocuses in small groups will attract the eye. These crocuses, however, had obviously been spaced by a foot rule. The heaths, such as Erica vagans and mediterranea, are also prominent; while saxifrages such as Sundermanni, Boydii, lingulata and frondosa, clothe what might be termed a rocky moraine. The trouble about this kind of garden is that it is next to impossible to cut the grass with a lawn mower; successful clipping is only accomplished by hand with a pair of shears.

An example of a garden formed of dry walls surrounding a paved octagonal court, designed by Mr. Ernest Dixon of West Hill Nurseries, Putney, could have been much more interesting and attractive by a more choice selection of early flowering subjects. Such plants as wallflowers are scarcely suited for dry wall gardening, especially since they were overshadowed by the surrounding shrubs, a feature that would be rarely seen in any outside garden. Included in the exhibit is a rock garden of a more natural design, filled with many dwarf shrubs and alpines.

SPRING FLOWERS AT VINCENT SQUARE

GRADUALLY, as the days come round and winter gives way to spring, the story of the change is fully evident on each succeeding occasion of the Royal Horticultural Society's Meeting. On March 10th last one felt like echoing the Geisha girls in the "Mikado" and singing of "the flowers that bloom in the spring tra la" on entering the hall. What a beautiful and wonderful display the spring flowers truly make with their charming soft and pleasant colours, and, above all, with that freshness which is the hall mark of the season. Alpines were well represented, including flowering shrubs suitable for the rock garden, carnations, orchids, cyclamens, roses, but undoubtedly the main feature was the exhibits of forced bulbs of tulips, hyacinths and narcissi which provide such an artistic show with a wealth of bloom and colour.

A striking display of hyacinths was staged by Messrs. Carters. Arranged in bold masses, as if they were bedded out, the whole group made a vivid patch of contrasting colours. The flower-spikes were long, the growth vigorous, and the colours bright and clear, those harsher in shade being softened down by the paler varieties. Duchess of Westminster, a purplish blue, and City of Haarlem, a cream, blended well together. All of the varieties were good, and to mention a few used, Dr. Leiber, Corregio, La Victoire, Lady Derby and Bismarck have been selected.

The seedling narcissi of Messrs. Barr and Sons again attracted much attention. Messrs. R. H. Bath were showing bulbs grown in fibre. Of this exhibit, the tulip Le Rêve was decidedly the best. It is a charming colour, a salmon pink slightly shaded with mauve and bronze at the tip of each petal, and is also good in shape and form. Messrs. J. R. Pearson and Sons, Limited, who exhibited an excellent collection of narcissi, had among them some beautiful white forms. The texture and purity were considerably above the average white trumpet narcissus. White Dame and Sanctity were both pure white and vigorous in growth. The drooping habit of the flowers of Sanctity was attractive. Some of the varieties although not perfectly white, were no less beautiful. Phantasy was creamy white with flowers on long stalks, and Capella had a very pale yellow trumpet surrounded by a pure white perianth. Mixed with any of these, the varieties exhibited with a deep orange cup such as Marshlight or Sunrise looked most effective.

A distinct patch of colour which caught the eye was that produced by the exhibit of Freesia Wistaria by Mr. G. H. D. Dalrymple, which decidedly deserved all the attention it attracted. The quality of the individual blooms was well seen even although they were arranged *en masse* with no varieties of other colours as a relief. The flowers were of a delicate shade of clear mauve, which merged gradually into lighter hues in the throat. The variety is, indeed, well named, as it is a true replica in colour of Wistaria chinensis. The flowers are of large size, measuring some 3½ins. long and almost 1¼ins. across, and as many as five to six individual blooms are carried on each tall and erect stem, which varies from 18ins. to 24ins. in height. The flowers also possess a sweet haunting fragrance. Wistaria certainly represents a great advance in the world of freesias, especially if it remains true and does not, as has been the case with many other varieties, produce a whole heap of "duds." For decoration and cut flower purposes it should prove of extreme value.

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There was not a great deal new or noteworthy among the rock plants, but the benches were gay with the early wild narcissi, "blue" primroses and the many hybrids of Primula Juliæ. Of quite different charm is the lilac primrose (rather doubtfully called Primula altaica), which replaces the yellow form on the eastern fringe of its distribution. This was shown by Messrs. Prichard, who also exhibited a striking new saxifrage of their own raising—S. His Majesty—which is in effect a magnified S. Burseriana with glandular orange stems and a pronounced ring of brownish orange at the insertion of the stamens, both together giving a warm tone to the great white flowers. These are large enough to have sacrificed the neatness of a true alpine for a more ostentatious beauty. The parentage is interesting and unexpected, for the plant is a cross between the hybrid R. V. Prichard (S. Burseriana Gloria × lilacina) and S. lilacina, though the influence of lilacina shows only in the tightness of the rosette and a faint pink flush in the bud.

Messrs. Tucker of Oxford showed a good pink hybrid of Sundermanni in S. Arco-Valleyi, which is very like S. Jenkinsæ, but, perhaps, rather neater, and the petals are more overlapping. With it was shown Farrer's S. Myra, that probably owes its deep cherry red to S. Scardica (S. erythrantha). Tulipa Clusiana, perhaps the most graceful of all tulips, made its first appearance this year on the same bench. Its peculiar colouring—white, lightly marked with carmine outside, and carrying a central patch of blackish violet within—is perfectly set off by the slender grey leaves, and it is curious that such a beautiful and distinct tulip is comparatively seldom grown, for it is much easier than many of the species. Stylophorum diphyllum, with rough, divided leaves and poppy flowers of uniform deep yellow, was shown by Messrs. Waterer.

Among the other exhibitors were the following:

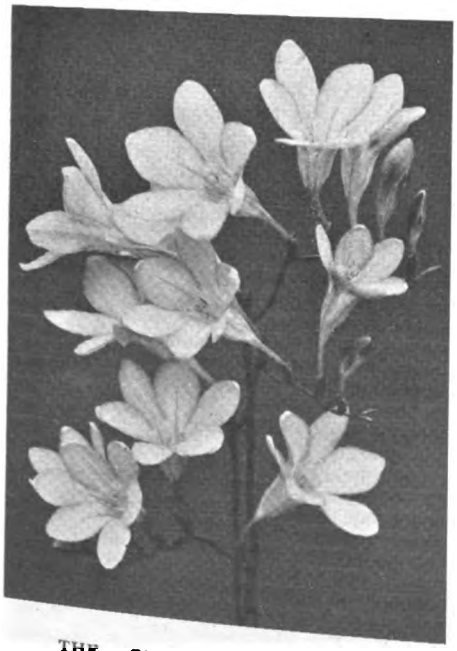
ANEMONES.—Messrs. Reamsbottom and Co., and R. Gill.

CARNATIONS.—Messrs. Allwood Brothers, C. Engelmann, and Stuart Low and Co.

CYCLAMEN.—Caledonian Strain Floriculturists.

FORCED SHRUBS.—L. R. Russell.

FRUIT.—Messrs. Bunyard, and Westmacott and Co., Limited.



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VIOLETS.—Misses Allan-Brown and Mr. Baldwin Pinney.

NEW AND RARE PLANTS.

NARCISSUS MEDUSA.—This is an excellent variety where the flowers are of good size and shape. The perianth is more or less whitish in colour, while the compact and cupped corona stands out in sharp contrast, being of an almost fiery orange shade. It is of a colour which is often associated with some of the best poeticus varieties. Award of merit by the Narcissus Committee. Shown by Mr. P. D. Williams, Lanarth, St. Keverne.

NARCISSUS GODOLPHIN.—Although this variety undoubtedly has merits as a garden flower, it appears to be eminently suitable for market purposes. It is a large trumpet variety of a rich yellow in colour. The perianth and trumpet are remarkably pure, and are of good substance and texture. The individual blooms are large and handsome, and carried well on long stems. Award of merit by the Narcissus Committee. Shown by Mr. P. D. Williams.

SALIX GRACILISTYLA.—This species is a native of Japan and Manchuria, and was introduced to this country about 1895. Judging from the naked shoots bearing catkins which were exhibited, it is of extreme beauty when in flower. The catkins, which are borne from now till April, vary from 1in. to 1½ins. in length and about ½in. broad. When unopened they are a silvery grey colour, being covered with a thick coating of fur. As they open the crimson anther heads dangle freely and loosely from the compact tassel and gradually assume a golden yellow colour as they become covered with their powdery pollen. Only the male catkins were shown. Award of merit. Shown by the Hon. Vicary Gibbs.

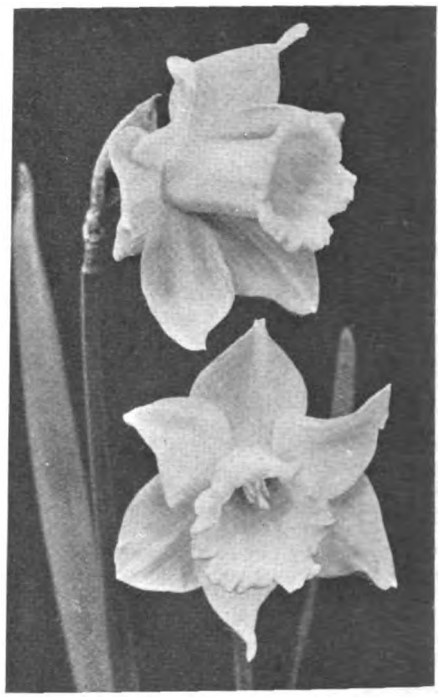
RHODODENDRON LEONARDSLEE GEM OF THE WOODS.—Fairly large pure white bell-shaped flowers, borne two or three together at the ends of the branches, are the characteristic features of this variety. The leaves are of a deep green colour and hairy on the upper surface. Award of merit. Shown by Lady Loder, Leonardslee, Horsham.

COLUMNEA BANKSII.—This is a representative of a genus of tropical American evergreen shrubby climbers which are excellent as subjects for decoration under glass. With their handsome scarlet flowers often, as in this species, almost 2ins. long, gaping at the apex, and their lolling, trailing or pendent branches bearing small opposite evergreen leaves they should be more generally known. Cultural commendation. Shown by the University Botanic Garden, Cambridge.

ORCHIDS.

MILTONIA BEAU BRUMMELL PITT'S VAR.—A charming form of this hybrid, the young plant bore a couple of flowers of purplish rose colour, the expansive labellum freckled with lighter spots. First-class certificate. Shown by Mr. H. T. Pitt, Rosslyn, Stamford Hill, London, N.

CYMBIDIUM FLAMINGO ROSEUM (Merlin × Alexanderi).—The erect spike carried four large flowers in which the segments were stiff and flatly displayed; in fact, the flowers had the formation of the well known Cattleya Loddigesii. Of blush rose tint, the labellum with light crimson markings on the front lobe and the column rose coloured. First-class certificate. Shown by Lieutenant-Colonel Sir George Holford, K.C.V.O., Westonbirt, Tetbury, Gloucestershire.



NARCISSUS GODOLPHIN, GOLDEN YELLOW

CYMBIDIUM BULLFINCH VAR. BRILLIANT (Alexanderi × Garnet).—The spike bore seven flowers of a yellowish hue heavily lined and suffused with reddish rose, the labellum whitish and with the front lobe of deep crimson. Award of merit. Shown by Lieutenant-Colonel Sir George Holford.

CYMBIDIUM MIRANDA, WESTONBIRT VAR. (Alexanderi × Lowio-grandiflorum).—This showy hybrid bore an arching spike of twenty-one large flowers of yellowish colour, the labellum white, and having crimson-red lines on the lateral lobes and a solid blotch of the same colour on the front lobe. Award of merit. Shown by Lieutenant-Colonel Sir George Holford.

CYMBIDIUM ALEXANDERI, OVERLEA VAR.—A robust plant of this well known hybrid, the two arching spikes bore a total of nineteen flowers of a pretty blush pink colour, the labellum having a few reddish markings and the column rose coloured. Award of merit. Shown by Messrs. J. and A. McBean, Cooksbridge, Sussex.

CATTLEYA JUPITUS (Edith × Tityus).—This elegant novelty bore two flowers with the segments broadly developed and compactly arranged, of rosy mauve colour, the petals crisped at the margin, the labellum having the large front lobe of crimson-purple. Award of merit. Shown by Messrs. J. and A. McBean, Cooksbridge, Sussex.

CYMBIDIUM TITYUS (Alexanderi × Woodhamsianum).—The long spike of this new hybrid carried several flowers of delicate creamy white tint, the labellum rendered conspicuous by the bright crimson markings on the outer margin. Award of merit. Shown by Messrs. Armstrong and Brown, Tunbridge Wells.

LÆLIO-CATTLEYA H. T. PITT VAR. SUPERBA (C. Enid × L.-C. Bella).—This promising hybrid had well formed segments of rosy mauve colour, the expansive labellum rich crimson and with a yellowish disc on each of the side lobes. Award of merit. Shown by Messrs. Flory and Black, Slough.

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FENCES IN THE GARDEN

ALTHOUGH fences are mostly used to divide one person's property from someone else's, they nevertheless find extensive application for dividing different portions of the same man's garden from each other, and also for keeping out livestock and trespassers from the garden itself when they are used to divide it from meadows, etc., or when a public footpath or roadway runs along one or more sides.

What type of fence shall we use, and shall we employ a fence at all, or build a boundary wall? In these days wall building is a very expensive matter indeed, and in most cases quite out of the question. Fences, therefore, of one sort or another must be employed.

WATTLE HURDLES.—These are among the most useful of economical fencings. They are cheap, light, easily erected and easily moved, and additions or renewals are quickly made. If strengthened with strong stakes they make an admirable background for climbing plants. Although not so lasting as an oak paling, they stand the weather long enough for all ordinary purposes. They are invaluable for temporary shelters for rare and delicate shrubs, and an enclosure of a few square feet is put up or removed in a very few minutes. The shelter they afford from cold winds is undoubtedly considerable, and a few of these erected across the exposed side of a plot planted with early potatoes will make all the difference, as will be quickly found, between the crop getting nipped and growing away unchecked. Likewise, for seedlings, etc., for which a cold frame cannot be spared during the springtime, wattle hurdles will be found useful, as the wind will strike them and pass over the seedlings themselves instead of striking the soil in which they are growing.

When not required for use for a few months wattle hurdles are easily packed out of the way under any old roof that is available. They must, however, be kept as dry as possible when in this store, otherwise they will quickly perish and become more or less useless.

IRON FENCES.—For more elaborate fences or where absolute privacy is required, iron fences are much in demand. Owing to the cost of building walls of brick or stone, iron spiked palings are a good alternative, while on many estates iron paling posts are preferred to wooden owing to their lasting qualities. The same applies to gates made of iron or other metals, while, of course, wrought iron gates, often copies of old designs, enhance the beauty of the entrance to a garden.

WOODEN FENCING.—When a close fence is required, whether to maintain privacy, or for any other purpose, close boarded oak fencing is to be recommended. This is strong and very durable, provided, as goes without saying, that the wood is well protected with some chemical compound, such as creosote or thoroughly painted before it is erected. This is supplied by fence-making firms in heights ranging from 3ft. to 6ft., and the price per lineal yard is remarkably cheap, considering the high cost of everything nowadays.

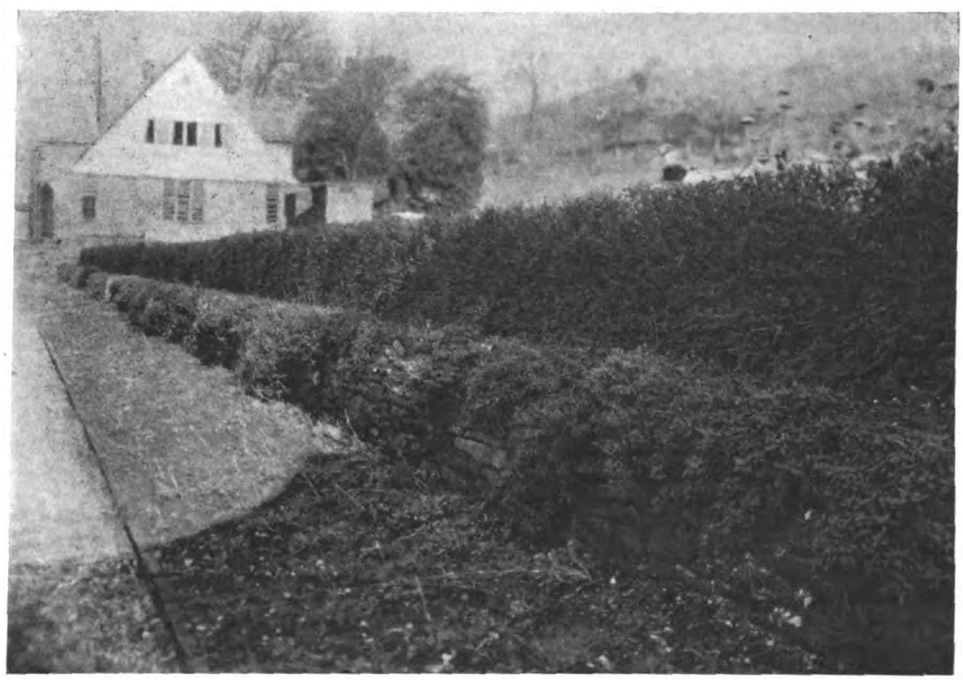
When a pale fence only is to be used, cleft chestnut is recommended, but other good woods include larch, fir and pine. The two principal types of this consist of fencing with the pales of even height, and fencing with the pales of two or more different heights. Obviously, if the whole fence is of an even height it is stronger and less easy to break down, and this is, therefore, recommended in preference to having say a 4ft. fence of which every other pale is only a yard in height.

Paling fences generally have the individual pales wired to each other in two, three, or more places, the ends of the wires, of course, being wound round or stapled to stronger posts at intervals. Where an extra strong paling fence is required it may be worth while to carry a wooden bar along the top of the row of palings, nailing through this into each, and also a second or third bar at a suitable position part of the way down.

WIRE FENCES.—These are not, as a rule, very beautiful, but they are certainly durable. A large range of meshes and gauges is available, the two most favourite forms being the diamond mesh and the square mesh. A leading manufacturer informs me that there are now on the market about a hundred distinct combinations of gauge and mesh. Thus a wire fence can be adapted to almost every requirement.

The height of wire fences must obviously depend, as in every other case, on the purpose for which they are to be employed. From 3½ft. to 4ft. is a favourite one, but for really substantial protection a fence 6ft. in height, with the top well barbed, is desirable. Strong wooden or concrete posts have to be inserted at intervals, and care should be taken when erecting to keep the wire as taut as possible. Straining pillars have, obviously, to be inserted at each corner, but for long, straight fences one of these in every hundred or hundred and fifty yards will be quite sufficient. Attachment or intermediary posts must be allowed for at the rate of about eight per hundred feet, or closer in certain special instances.

It may be mentioned before leaving the subject of wire fences that more effort might well be made to beautify them during the summer months by planting climbing annuals along their inner sides, provided, of course, that these are not of a poisonous character, or likely to injure stock which may eat them from the other side of the fence.



A CLOSE CLIPPED HEDGE OF LONICERA NITIDA, FORMED OF PLANTS THREE YEARS OLD.

LIVE FENCES.—Just a word in conclusion about live fences of privet or other shrubby subjects. These are sometimes used in connection with barbed fences or pale fences, but are not very often used when wire is employed. Personally, I should never advise planting privet on account of everybody having a privet hedge in their garden. Golden privet, however, is well worth considering because of its greater attractiveness; while holly makes a very thick and quite impervious hedge. A new and choice evergreen which is now coming to the fore as a suitable plant in forming live fences is Lonicera nitida. Poisonous shrubs, such as the yew, should not be used on account of the danger of cattle eating them, or the clippings becoming mixed with food for livestock accidentally. If live fences are to be planted this season the work must be done immediately, as it is getting late.

E. T. ELLIS.

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SEED SOWING

BY EDWIN BECKETT.

A WELL behaved seed packet generally bears some such instruction as "Sow on a warm site in April," or "Sow in drills in May," and it all appears very simple; but these notes must start with a query as to whether it is quite so simple as it seems at first glance. Those to whom seed sowing is a comparatively rare occupation may well hesitate before replying, but those accustomed to the work will no doubt answer most emphatically in the negative. That may well be understood, for more seed is probably wasted through poor or bad sowing methods than from any other reason. Incidentally, this survey of the art may save many an innocent seedsman from blame because "seeds won't germinate."

In order to introduce the subject, we will consider what a seed is, and how it functions towards the production of plant life. It is just a small body containing what is really a microscopic plant, termed the embryo, and a quantity of food material, though at times this constituent is missing, the whole being encased in a coat of greater or lesser strength. From this the living embryo under certain conditions escapes to produce the mature plant in time. When germination commences, the primary parts which will ultimately give rise to root and stem are thrust forth from the seed vessel—the root portion going downwards, avoiding the light, though air is necessary to it, while the other part thrusts upwards towards light and air, and eventually becomes the stem of the plant. Moisture, temperature and air are the governing factors that control germination, and these facts now bring us to the prime essentials for a commencement of seed sowing.

The first point to remember is, never to bury the seed too deeply in the soil so that the tiny plant is stifled and destroyed before the stem portion can reach the air and light, so necessary to sustain life. Often the food supply within the seed is exhausted in the attempt of the stem to reach above ground level. This deep sowing is a frequent error, and one that can be avoided by bearing in mind an everyday rule: only to cover a seed by its own depth of soil. This is a "rule of thumb" method, not a hard and fast one, for some seeds are so fine that they only need sprinkling on the surface of the soil of a seed pan and to be pressed into contact with the soil, but, generally speaking, it is a safe and good rule.

The second matter to observe is never to sow in hopelessly wet soil, in which case one would only expect the seed to rot before it would germinate, and to avoid sowing, whenever possible, at such time as the temperature is so low that it would only retard or even prevent proper germination.

Another detail that should be properly observed is to have the soil in good tilth, *i.e.*, sufficiently broken up to receive the seed in such manner that air is present to aid the germination. The Biblical parable of the sower and the seed is probably one of the finest lessons on this point and others that any gardener could wish for in illustrating the matter.

One very important consideration always to bear in mind is to avoid sowing too thickly. It is of more importance than may at first be imagined, and to emphasise the lesson and drive it home we must parallel the raising of seed with human life. The crowding together of human beings in confined areas is a prime cause of stunted growth, ill-health and disease, mainly through the lack of sufficient light and air, and also partly by the absence of proper food and protection. Such is the case with young plants grown in overcrowded conditions. The dreaded damping-off disease (Pythium de Baryanum) of plants, for instance, is a frequent result of thick sowing and too damp a seed-bed, and there are other diseases which affect plants that are encouraged by such adverse conditions.

SEED PAN OR POT SOWING.—Pans or pots should be perfectly clean, both within and without, and drainage is the most important item after that. A stopper of broken crock should be placed in the bottom, surmounted with lesser pieces, and finally finished with smaller crock, over which should be placed a good-sized piece of fibrous turf. The general idea of the "crocking," as it is termed, is that for seed raising two-thirds of the space should be occupied by crock. This is all very well if the young seedlings are to be transplanted as soon as they are ready to handle, but if there is a likelihood of such an operation being delayed for a time, lesser crock should be employed to permit more compost, in order to sustain the life of the young plants until they are moved and to lessen the call for water, such as would be the case if only a shallow depth of soil is in the pot. On this point, of course, the sower must use his discretion. Finally, on the turf layer place the compost so as to fill up to within a half-inch from the rim when sufficiently firmed down, which operation should be done with the finger-tips. The idea of the latter is to obviate layers of soil, packed down firm, on which another layer is spread and packed, as this leaves a crevice-like division into which the seedlings have a tendency to pack their young roots rather than to spread them out evenly downwards in the soil. When seeds are sown, such as peas and beans, in pots where they are to grow on, the foregoing rules require modification as to the depth from the rim, for in such cases sufficient space must be left for top-dressing the young plants as growth is made, so that they do not get starved. Other details, such as soil covering, watering, etc., are controlled by the early remarks, and it only remains to add that the compost used should be of a nature and sufficient fineness to suit the seed sown and moist enough for the purpose. When the seed is sown, should it require watering, careful immersion in water is far preferable to watering with a can and rose, as the latter method, especially with regard to very small seeds, is likely to disturb them badly. Remember to sow evenly and not too thickly. Sand should always be a constituent of the compost, for this is the medium in pot raising that allows the necessary air to penetrate to the roots of the young plants as well as rendering the compost porous.

SOWING IN DRILLS.—This method is adopted in frames and for the open ground in cases where it is desirable to grow the plants under proper control and where transplanting is not desirable for the crop as it stands. It is the principal method for open-air work and, incidentally, effects good saving of seed in the majority of cases. The drills should be drawn in lines running north and south for preference, so that plants are permitted to have the influence of sun on three sides, whereas were they drawn east to west only one side would be principally affected. The drills should be drawn in a surface of fine tilth, and only of sufficient depth to allow the seed to be sown in conformity with the previous advice of not burying too deeply. Seed should be sown thinly.

BROADCAST SOWING.—In these days of wireless, very few people but know the meaning of broadcasting, and when applied to seed it still only means spreading in all directions. This method is principally used for seed-beds, where such items as the brassicas, leeks, celery, etc., suitable for transplanting when required into rows in other quarters, are sown. The only notes on this that are required are again to advocate the surface of the soil being of fine texture and to renew the advice against sowing too thickly. Further should be added a caution to protect against attacks by marauders, such as birds, mice and other seed raiders, by means of nets and other devices when the sowing is completed. This is necessary in all cases, and it is also necessary to protect the young seedling plants against slugs, which may effectively be done by ringing round them with sharp cinder ash.

Little more need be added to this subject other than a caution to thin out seedlings at an early stage so that they do not get overcrowded, with the resulting "drawing" effect, and to mention that when the transplanting period arrives and the plants are being moved from their nursery quarters this should be done in a careful manner so that as much soil as possible is left in position round the roots in order to prevent root disturbance as far as this is possible. Transplanting is an art that only careful practice will teach.

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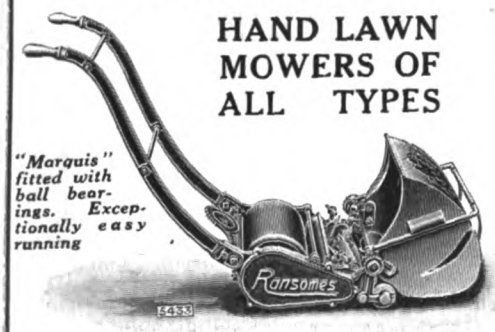

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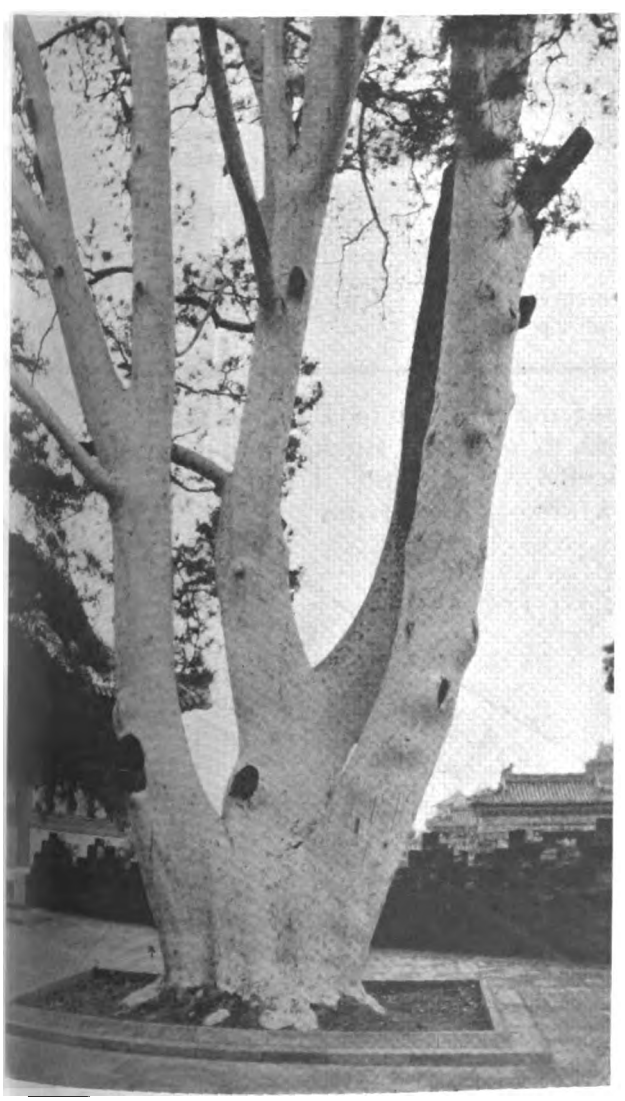
CORRESPONDENCE

PINUS BUNGEANA.

THE accompanying illustration of Pinus Bungeana, the lace-bark pine of North China, was reproduced from a photograph given to me by a lady who has just returned from Pekin. It represents a tree growing in the environs of that city, and gives, I think, an excellent idea of the most prominent characteristic of this pine, which is, of course, the conspicuous whiteness of its trunk. This character, unfortunately, does not develop until the tree has attained a considerable age—at least fifty years, I believe—and no tree in cultivation in this country has shown it yet. The species, nevertheless, is thriving well, and at Kew there is a group of healthy trees in the pinetum at the south end of the lake. Apart from the white trunk, which we shall have to wait for, Pinus Bungeana is well worth growing. The best grown young trees assume a pyramidal form; others make large, rounded bushes. I remember the late Philippe de Vilmorin told me he considered there were two natural types of this tree distinguished by this difference in habit. Both are well furnished with vivid green foliage and are ornamental enough to be planted by all who take an interest in conifers. This pine is quite at home on a limestone formation. Its leaves, in bundles of three, are about 3ins. long, the basal sheath soon falling away. The onlyother pine closely related to it is the very rare P. Gerardiana from the Himalayas. The cones, each 2ins. to 2½ins. long, with scales armed with a decurved spine, have for several years past been borne by trees at Kew.—W. J. B.



PINUS BUNGEANA WITH ITS CHARACTERISTIC WHITE BARK.
(From a photograph taken in China.)

BULBS IN THE UNITED STATES.

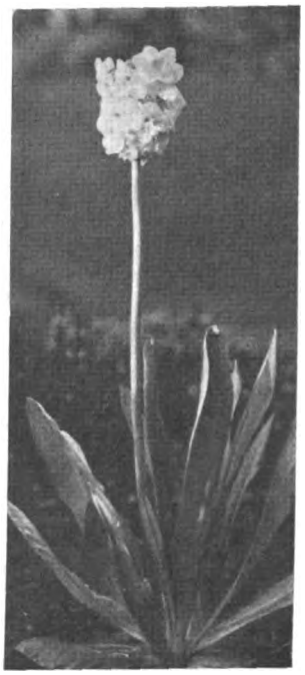
SIR,—With reference to the recent embargo on potatoes from the United States, if Great Britain and other countries would issue a few embargoes against agricultural products, we, in the United States, who are interested in the importation of bulbs are inclined to believe that some of the arbitrary features of Quarantine 37 would be either lifted or would be tempered with common sense.

Our Department of Agriculture has given the growers of narcissi in the United States three years in which to accomplish and master an undertaking which has taken European bulb centres over 300 years to become proficient in, and this period of three years ends with December 31st, 1925. This act alone is inconsistent, because anybody, even our Department of Agriculture itself, can point out in conclusive evidence that narcissi cannot successfully be grown in the United States on a commercial scale.

It has been suggested among the importers of bulbs in the United States that they would be willing to pay an extra 2 dollars per thousand on imported bulbs for inspection and treatment fees; this in addition to the 2 dollars duty that has to be paid in any case. This inspection and treatment would be in addition to that required in the packing of shipments in Europe. At the present rate of importation, duty and inspection fees would yield 400,000 dollars per annum. If every importer of narcissi had to consign his shipment to New York for treatment and inspection, I am satisfied in my own mind that all narcissi imported into the United States could be inspected and treated for 25,000 dollars per annum.

Horticulture in this country is of no importance when compared with agriculture, which makes it exceedingly difficult for the horticulturist to get a hearing, while, on the other hand, the protest of the American farmer is immediately carried into the Senate and Congress. The five members constituting the Federal Horticultural Board are vested with power—through the Secretary of Agriculture—to employ such means as will safeguard agricultural and horticultural interests in the United States, to promulgate and put into effect from time to time such embargoes and quarantines as they, in their judgment, see fit, often with practically no thought for the interests of commercial growers at large.

We fumigate our cotton before it leaves the country in order to guard against the spread of the boll weevil, and this fumigation is absolutely satisfactory. Because this is possible, we who are interested in narcissi see no reason why the bulbs should not be imported subject to rigid examination and treatment before being released.—DAFFODIL.



PRIMULA CHIONANTHA.

A VALUABLE FLOWERING PRIMULA.

SIR,—Everyone who can grow Primula chionantha successfully will agree that it well deserves the award of garden merit conferred on it by the Royal Horticultural Society. In the R.H.S. Journal note mentioning this award the time of flowering is given as June and July. I cannot understand this, as my plant last year flowered in May, and things with me are a fortnight to a month later than in the south. Also I noticed it flowering in the Edinburgh Botanic Garden about the middle of May. My plant behaved rather curiously last year, for after flowering well in May—as the enclosed photograph shows—it lost all its leaves and went to rest in August, but started growing again in October, and had two fine flower spikes in November. After this it again died down, and now on February 5th it is starting into growth again. It was not alone in flowering in this way for a second time last autumn, as Primula muscarioides and P. Littoniana did the same.—R. B. COOKE.

ROSE TRIER.

SIR,—I am much interested in two letters in THE GARDEN referring to Rose Trier. I have "inherited" a climbing rose which is labelled "Trier." It is a strong grower with brownish stems, flowers freely, bunches of small pinkish white blossoms, no scent, and it ripens brownish green hips. I should be grateful if either of your correspondents will tell me if it is true to name, or has Trier died and only the stock remained?—M. M. S., *Bath.*

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SIMPLE GARDENING

MIGNONETTE.

THIS tiny-flowered plant does not require any recommendation; it is one of the most widely known of all garden annuals, but, even so, it is not generally well cultivated. Usually, a few seeds are sown thickly in rows or patches in the borders. The resultant seedlings are rarely thinned out, but all, or nearly all, bear small stems with a few tiny flowers in a bunch at the top. The plants, in wet weather, are beaten down and many rot on the ground. There is, of course, the medium treatment with corresponding improvement of flower and plant. The mignonette grows well, and forms a strong plant, in a pot as well as in the open border. With a little extra care fine standards may be grown. There are some beautiful varieties, seeds of which are advertised by seedsmen in THE GARDEN. Having made a selection of these the cultivator should duly prepare a plot of ground in which to grow the plants in rows for cutting and in clumps in the border. A medium rich soil is the best; in poor ground the plants are thin and wiry; in very rich, they are too strong and sappy of stem. Some old mortar rubble will improve the rather rich soil. Sow the seeds thinly, watch the seedlings carefully and duly thin them to at least 3ins. apart. Before the plants entirely cover the ground scatter some leaf-soil and loam, mixed, between them. Fine masses of plants will result, bearing big spikes. If grown in pots for the windows or greenhouse, sow several seeds in small pots in frames, thin the seedlings to two in each pot and re-pot in due time. Do not transplant; 6in. and 7½in. pots are suitable for final potting.

CELERY SEEDLINGS.

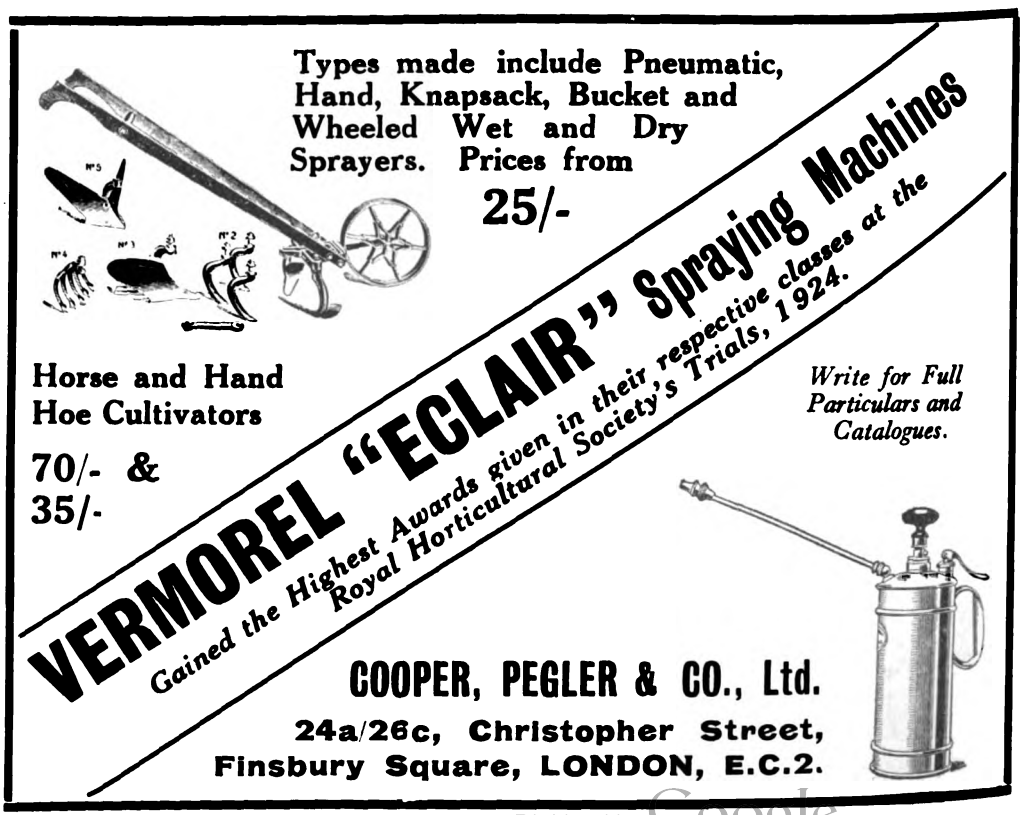
Celery is one of the most difficult of our many kinds of vegetables to grow. Undoubtedly, the young plants can be grown grossly if they are subjected to a strong bottom heat, but this treatment would be wrong. I remember seeing a box of fine-looking plants on a hot-bed many years ago, when I was a youth. A gentleman who saw them remarked on their splendid condition. But at the end of the season they were failures, possessing big but hollow stalks. A noted judge once referred to some large sticks staged, as overgrown. Celery plants should never receive a check, but be grown on steadily and in firm, rich soil when the trench stage is reached. It should be remembered that celery plants are gathered as bared in the ridge of soil, a start being made at one end of it. All the plants should be of the same size as nearly as possible, and to ensure this being so seedlings of similar size should be transplanted in the first case. The work of transplanting should be done timely at each stage, first at 2ins. apart in boxes 4ins. deep containing about 3ins. of loam, leaf-soil and a very small proportion of well rotted manure. A greenhouse shelf is an ideal place at first, then a cold frame. In the meantime, a bed should be made in another cold frame or a sheltered position outside. Put down a layer of sifted ashes 1in. deep, firm these with the back of a spade, then add a thin layer of rotted manure and follow with one of good compost 4ins. deep. Plant the celery 6ins. apart. In due course they can be lifted and planted in the trenches with all the soil adhering to the roots, and no check will occur.

PREPARING PLANTS FOR WINDOWS AND HANGING BASKETS.

Very frequently, plants are taken direct to a dwelling-room window without any previous preparation. The result is that, in such cases, the plants are unsatisfactory throughout the whole of the summer. There are, in the majority of dwelling-houses, windows facing north, east and west. Of course, some kinds of plants do better in cool than in hot windows, and so it is a wise plan to study this matter and provide the kinds of plants most suitable to the various aspects. For example: ferns do best in east, north and north-west windows. Zonal pelargoniums, petunias, nasturtiums and marguerites do well in a hot window. For hanging baskets, naturally drooping plants such as ivy-leaved pelargoniums and fuchsias are suitable, and tiny plants such as lobelia are for all window boxes and baskets. Persons who own greenhouses should re-pot selected specimens that are to be grown in pots throughout the summer, and get them nicely established in the pots before they are placed in the windows. Other plants that are to furnish baskets or window-boxes should not be allowed to become pot-bound before they are placed in their summer positions. Purchased plants should all be up to the standard required for the various purposes.

EVERLASTING FLOWERS.

These are very beautiful and interesting flowers and are grown more carefully now than they were a generation ago. In favourable seasons most of the varieties may be raised from seeds sown in the open borders in the southern counties. But it is well worth while raising seedlings in boxes and transplanting them, in due time, to their flowering quarters. If seeds are sown thickly outside and the resultant seedlings are not freely thinned-out the flowers are very poor ones. A few plants well treated will surprise the cultivator by their beauty. Use the following ingredients for a compost: Loam, 2 parts; rotted manure, 1 part; and leaf-soil, 1 part; sand is not required. The soil in which the plants are flowered should be deeply dug and also well manured. The planting should be done the third week in May. The flowers should be gathered, made into small bunches and suspended, heads downwards, in a cool, dry shed, when they are three-parts open. So suspended the stems retain their position. The best way to use the flowers in the winter is to form bouquets by inserting the stems in soft lumps of clay, the latter dry and the bouquets may then be placed in vases in the dwelling-rooms and halls. The helichrysums are all richly coloured; the rhodanthe, purple and white respectively, is really exquisite; Statice Suworowi, annual, and S. latifolia, perennial, are also charming. These are the best to grow. GEORGE GARNER.



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NATIVE PLANTS

WITH the approach of spring everyone gets a touch of wanderlust. Whether it drags us overseas or to a nearby hedgerow we have an earnest desire to explore, and the result of such exploration is usually the collection of a plant or plants. Of wild plants from abroad I have nothing to say at the moment except that at the right season you can see hardy townsmen arriving any evening at Victoria each bearing parcels of varying shapes and sizes. From the jealous care which is shown to these parcels one would imagine that they contained the latest creation from Paris or a seasick baby; not at all, they are the result of strenuous days in the mountains, of hours of climbing, of digging with a trowel, of trouble with the Customs. They are alpines which can usually be bought for a shilling or two a dozen from a nurseryman.

Perhaps I am a little unkind in speaking in this way, for after all a plant which you have collected with your own hands is worth dozens of bought plants. Their sentimental value is great. Many of these plants collected in the hills on the Continent will thrive with ordinary care. Very different is the case of most wild plants in the British Isles. Many of these, in fact most of the smaller native wild plants, prove exceedingly stubborn in cultivation. Take Lords and Ladies as an instance. In many parts of the country it is exceedingly common, but try to transplant it to surroundings where it is not found in a wild state and nine times out of ten it will be as stubborn as a mule and refuse consistently to thrive or to spread.

It is often said that enthusiasts who comb the country in order to find our rare native plants are jealous by nature. They will produce some prodigious rarity and refuse to tell their best friend where they found it. The reason, no doubt, is partly that the plant is really very rare and they realise that if they describe its habitat the supply will rapidly be exhausted; but there is another and, I think, far more sound reason, and that is that the plant is obviously by nature difficult, else it would be found in greater quantities as a wild plant. If it is miffy in its native state, it is obvious that it would be a terror to grow in a garden and so perhaps it is better to leave it where it is.

I should say that our native plants are the most difficult to grow successfully in gardens, followed by those from the Rocky Mountains as a close second. The third would probably be New Zealand plants. By this, of course, I mean plants from areas where the climatic conditions are either the same or more severe than at home. On the other hand, the percentage of plants from the European Alps or from China which are cultivatable must be large.

No doubt there is some scientific explanation for the miffiness in cultivation, particularly of our native alpines, but I think that this can be explained in simple terms. It is largely a question of food. Supposing that a human lived and thrived under meagre conditions and that suddenly his food was altered while everything else was kept the same. Instead of 8oz. of nourishment being assimilated every day, his interior economy was called upon to digest 2lb. of richer food every day. For a period there would be great internal derangement. The average life of a human is from sixty to eighty years, while of a small plant it may be as many months, and their internal adjustments are just as complicated as those of an animal.

It might be imagined that plants from abroad would be liable to derangement to an even greater degree, but I think that is not so, for in the case of native plants only one factor is really altered, that of richness of food, while those from abroad have to approach life from a different angle in many details. It is often easier for a human to change his entire method of existence than to alter it essentially in only one detail.

This may appear to be a feeble explanation of the difficulty of growing our native plants in our gardens, when all the various factors and exceptions are taken into consideration, but I think there is a modicum of truth in it. One thing is certain, that the rarer a native is in a wild state the more difficult is it to acclimatise in our gardens.

I have not touched upon the ethics of growing native plants in our gardens, as this is a question on which opinion is divided. Personally, I can see no objection to it other than the fact that the majority of them grow better in their native haunts, but there are many gardeners to whom the cultivation of our rarer natives is anathema. I suppose it depends upon whether we look on our gardens solely as a collection of plants or as a spot which is peaceful, and where our senses are rested and satisfied. Apart from the question of plant collecting there is an infinite joy in looking for and examining plants in the wild. It is just as satisfying to see a fine group of Dryas octopetala in full bloom on the Scotch hills as it is on the Alps. There are many places in this country which have a magnificent flora, and yet they are only known to a few enthusiasts, and of these most of them look but do not touch.

E. H. M. C.

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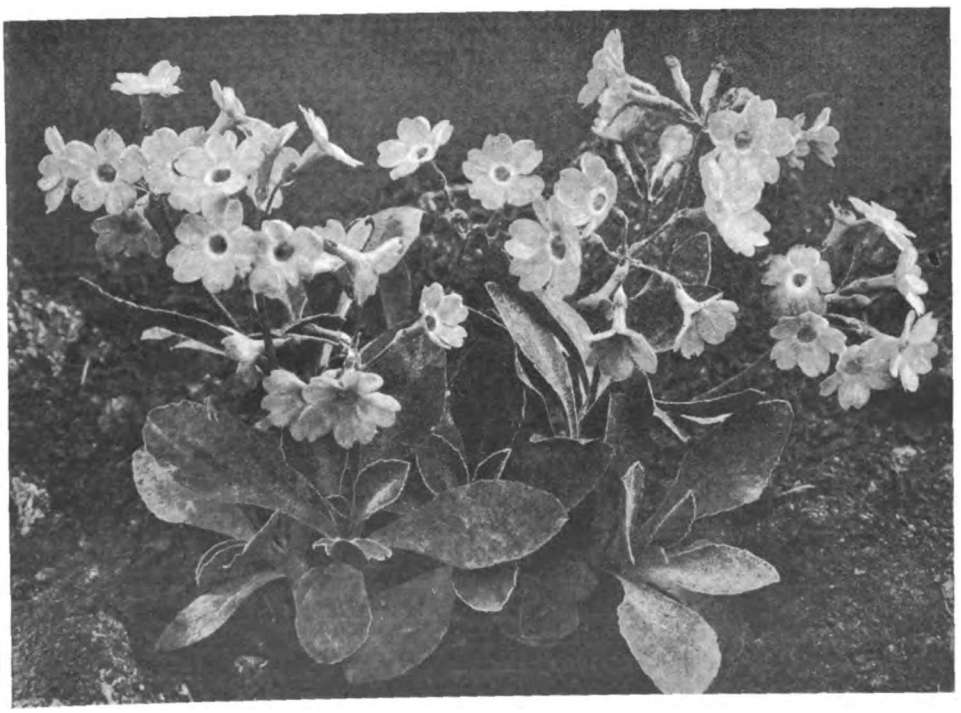
EUROPEAN PRIMULAS

THERE ARE FEW PLANTS SO PLEASANT TO GROW AS THE PRIMULA, AND THOSE OF THE GENUS WHOSE NATIVE HABITAT IS THE EUROPEAN ALPS ARE AMONG THE MOST SATISFACTORY OF ALL FOR GARDEN PURPOSES.

IN PRIMULA MARGINATA we have a most pleasing and satisfactory subject for the rock garden, sound and reliable in every respect, ranking among the best, and is worthy to, and should, be included in every collection of good alpines.

PRIMULA FARINOSA, THE BIRD'S EYE PRIMROSE, A DAINTY SUBJECT FOR THE ROCK GARDEN.



THE ATTRACTIVE VIOLET PURPLE FLOWERS OF PRIMULA MARVEN.

There are, of course, a great many forms of this charming plant, colours varying in all shades of lavender, lilac, purple and violet, and rarely white; the size and shape of individual blossoms also vary considerably, some being large or small, starry or round, but, generally speaking, all types are good. The foliage is of a stout leathery texture and is formed into sturdy rosettes which sit tight on the woody ancient-looking stems, so characteristic of the plant. In the early spring as the new leaves unfold, the plant presents an extremely handsome appearance, being practically enveloped in thick cream-coloured meal, this being particularly distinct on the margins of the beautifully notched leaves, and although heavy rains wash the greater part of the meal away, the bold white margin still exists. If the plant is grown in the alpine house the mealy appearance is more or less preserved. The flowers are borne in May and June on 3in. or 4in. stems, several blossoms constituting a head. Its culture is of the simplest type, it being perfectly happy in an ordinary, gritty, well drained compost, preferably where it can enjoy a choice, sunny, perpendicular crevice, but it will grow and thrive in any ordinary sunny pocket. Although it prefers lime this substance is by no means essential for its well being. It has many stations in the European Alps, occurring both on limestone and granite formations. As time goes on it will be found that the stems get rather straggly and somewhat unsightly. If the tops are cut away, however, fresh buds will break in plenty down the old stems, and the tops will root readily in sand and provide new robust young stock.

PRIMULA MARGINATA VAR. LINDA POPE.—This variety, which may possibly be a hybrid, is one of the finest forms of the type. It possesses all the good qualities of P. marginata in an enhanced degree, rendering it an ideal plant for the alpine house. Comparatively little difficulty ought to be met with in its cultivation, provided it is treated like the type. Of late years it has become very rare, and nowadays can only be procured from a limited number of nurserymen. Style and habits favour P. marginata, although the leaves are much larger, and more deeply notched; while the flower stem is more sturdy with a dense head of large sumptuous blossoms of a lavender colour with a mealy white eye. The blossoms are as round as could be desired.

In PRIMULA × MARVEN we have another plant of great reputation and one that is often sought for in vain, since it is now as rare as Linda Pope. One parent of this delightful hybrid is P. marginata, but I do not think it is possessed of foliage quite so handsome, although it is well powdered with farina, and is sturdy and compact. The flowers are very attractive, of a violet-purple shade, much enhanced by their conspicuous pure white eyes. They are also freely produced in heads, the stems of which just appear above the foliage. It is a good doer in a well drained compost in a cool corner.

PRIMULA FARINOSA (the bird's eye primrose), is indigenous to Britain, and is a dainty little subject for the rock garden or for naturalising in grass, to which it is accustomed. For association with other plants in the alpine lawn it is also ideal, or planted with Myosotis rupicola it provides a splendid combination of colour. As the name implies, the plant is wholly

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covered with farina, which gives its foliage and flower stalks a silvery grey appearance. The leaves are formed in the shape of a dwarf rosette, sitting close to the ground, and are long and narrow, while the flower stalk varies in length, from 3ins. to 6ins., headed by a group of delightful pale pink golden-eyed flowers. Colours do not differ to any marked degree. Sometimes one may pick out an extra deep coloured specimen or a much paler form, or even, very rarely, a pure white one, but none is prettier than the usual type. As regards its position on the rock-garden, a sunny aspect is suitable, in a compost of good turfy loam, well drained, and where its roots are cool. Plant among other dwarf alpines to obtain good results. It flowers about May or June and sets abundant seeds, by which it is propagated.

PRIMULA SCOTICA.—Simply the Scotch form of P. farinosa, but not so satisfactory to cultivate, very often dying out after flowering. I think it sometimes flowers so much as to kill itself. Only this last summer I noted odd plants that produced three distinct crops, and on each occasion ripened all their seed. The grey, powdered leaves are short and broad and the deep purple flowers are borne in heads on 2in. stalks, making the plant a perfect miniature of the type. Treatment as for the latter.

PRIMULA LONGIFLORA.—The beautiful species that has a wide distribution, in the European Alps occurring in the high alpine meadows. It resembles P. farinosa, but its rosy pink or lilac flowers are larger and the corolla tube is very much longer. The leaves are very similar, being pale green covered with meal, but slightly larger. Position and compost as for P. farinosa.

PRIMULA HIRSUTA is an easy and free-flowering alpine that is capable of making a showy patch of colour in a choice corner in the rock garden fairly rapidly, producing short, sturdy tufts of leathery leaves which are densely covered with fine brown hairs, more noticeable perhaps round the serrated leaf margins. The flowers appear in heads just above the foliage, or may even be snugly nestled among the leaves. Again there is much variety in colour, but usually rosy pinks predominate, albinos rarely occurring. A nice sunny pocket or crevice in a well drained mixture of loam and leaf-mould will be found quite satisfactory. It seeds readily, and numerous first-rate hybrids have been derived from it, one of the best being

PRIMULA HIRSUTA MRS. J. H. WILSON, which made a splendid new addition for the rock garden a few years ago, having the same free-flowering qualities, together with a sound and hearty constitution. The flowers, borne in May on heads on 3in. stems, are of a bluish-purple colour, with a white eye. The foliage of all the hybrids is more or less alike, and cultural details also. It may be noted that although a sunny position is advised, a cool root-run should also be provided. Other noteworthy hybrids include P. h. Ruby, of a ruby red shade with an eye of purest white; P. h. The General, with flowers of an uncommon shade of a rosy terra-cotta; and P. h. Ladybird with mealy leaves and flowers of a dull red, the heads carrying them being exceptionally large and round.

PRIMULA PALINURI belongs to the auricula group, but seems rare in cultivation. Its leaves are large, smooth and of a bright green colour, and it increases from a rambling woody rhizome. The flowers droop in loose heads, similar to cowslips, and take the form of golden yellow trumpets; these, by the way, are sweet scented. For the rock garden it needs a sheltered position, facing west, and delights in a warm limestone crevice, in loam and peat.

PRIMULA AURICULA CILIATA is a very dainty and choice species, desirous of a well drained sunny ledge in the rock garden, in a gritty limestone mixture. It is small and neat in all its parts, having leaves of a dull green, covered with minute silky hairs, giving them a smooth, velvety appearance. The flowers are bright yellow and hang loosely in heads on short slender stems in June or thereabouts. F. BARKER.

(*To be continued.*)

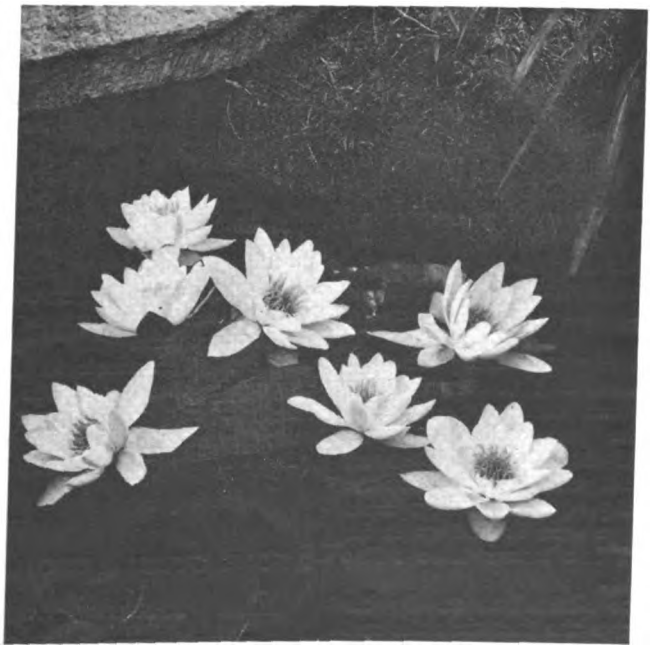
PLANTING THE WATER AND BOG GARDEN

(*Continued from page* 159.)

THE mention of foliage by the waterside introduces a note that is one of the essentials for success in such planting. Broad, massive foliage shows to better advantage by the waterside than anywhere in the garden, and the noblest genus for the purpose is the gunnera. The Chilian species, G. scabra, is the one most frequently met with, and is a plant of noble proportions, but G. manicata grows larger, and where it can be planted should be used. Both require plenty of room and should never have any other vegetation crowded close to them. As they have been known to attain a size of 20ft. or so across and their bold, handsome leaves sweep right down to the ground, it is obvious that other plants have little chance in competition with them.

The rheums, or ornamental rhubarbs, are also effective and bold. R. palmatum sanguineum with its crimson veins and giant foliage is always beautiful, but is never so attractive as when its towering spikes are rising 6ft. or more, delicately tinted amber, soft green or vivid scarlet, sometimes all three at once.

Then there are the rodgersias with leaves like the chestnut and flowers of various tints, the best of which are R. æsculæfolia, pale pink; R. pinnata, deep rose; and R. tabularis, creamy white. All prefer shade and love moisture.



WATER LILIES THE REAL GEMS OF THE WATER GARDEN.

Before leaving the large foliage plants I must mention Saxifraga peltata (giant saxifrage). Delightful pink flowers rise from the ground in early spring before the leaves develop, but the true beauty lies in the succeeding foliage. Three feet high, beautifully veined and netted, this is one plant I would always have in the water garden to the exclusion of many others. It is equally happy in shade or sunshine.

But despite the nobility of the bolder-leaved plants, the water garden would never be the fairy land it can be without its sedges, rushes, reeds and grassy-leaved plants.

Eulalias (syn. Miscanthus) japonica and gracillima are two of the lightest forms. E. saccharifer is a giant grass growing 6ft. and over on occasion, and its rich green, boldly arched foliage is a note of distinction in itself. The lyme grass, too (Elymus glaucus), with its beautiful blue-grey masses of foliage, makes an effective colour note. Funkias enjoy the shadowed recesses higher up the bank. Pennisetum latifolium is a very decorative grass 5ft. or 6ft. high. Phormiums (New Zealand flax) are excellent plants used sparingly at definite points. Stenanthium robustum lights up the scene with large cream plumes of flower. Of arundos, the grassy-leaved A. conspicua, with plumes like pampas grass, is very beautiful

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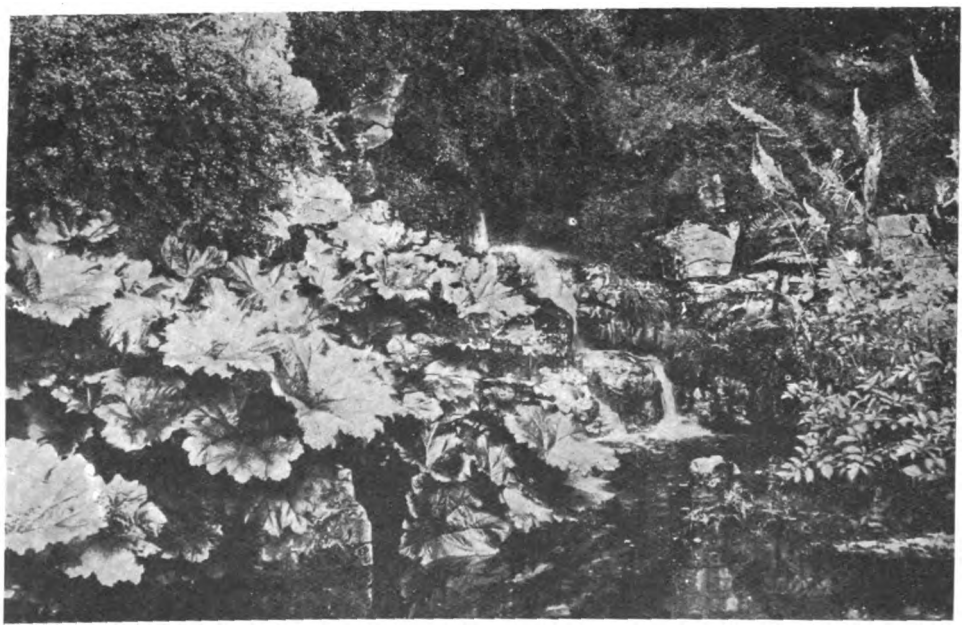
in the proper place; but the best of them is the giant Mediterranean reed, Arundo Donax, of which the best form is that known as macrophylla glauca, with delightful blue-grey leaves, that towers to a height of 8ft. or 10ft. and yet never loses its graceful outline.

But the water garden would be very poor indeed without its aquatics. Indeed, with me there is a feeling that all I have mentioned hitherto only exist to frame the picture of the water garden proper.

First there are the semi-aquatics. The sweet flag (Acorus Calamus) cool to look at and sweet when crushed in passing it. A variegated plant that, like those I have previously mentioned, loses nothing by its variegation is Acorus japonicus foliage variegatus. Glyceria aquatica will ramble along the banks and out into the shallow water and impart a lovely moonlight effect. The juncus, also, particularly the porcupine rush, J. zebrinus, add grace and beauty to the picture. The bog or buck bean (Menyanthes trifoliatus) will creep along the shallow margins. The blue-flowered water hyacinth Pontederia cordata, is a charming plant where it succeeds, but this is not everywhere. Then there are the arrowheads. (sagittarias), of which the Japanese form S. macrophylla is the best of the singles and S. variabilis fl. pl. the only good double, A true water-loving plant is Zizania latifolia (wild rice), which reaches a great height in a very short space of time. It will also reach a great distance from the spot in which it is planted unless kept in check.

The flowering rush (Butomus umbellatus) and the typhas (reed mace) are invaluable, and form excellent backgrounds for water lilies, as well as serving to shelter and protect them against wind or running water. T. latifolia is a plant for large areas only. T. stenophylla is a smaller-habited plant for the



SAXIFRAGA PELTATA BY THE STREAMSIDE.

water garden of moderate size, and the tiny reed mace, Typha minima, is a very pretty plant when bearing its little brown clubs. Plant it somewhere—just in the shallow water—if you can get it.

Of the true aquatics, that is, those plants that send their roots into the depths but whose leaves and flowers float on the surface. The most attractive are the native yellow flowered Villarsia nymphæoides, the yellow British water lily (Nuphar advena), the frog bit (Hydrocharis Morsus-ranæ) with its little brown floating leaves and yellow flowers, and the water hawthorn (Aponogeton distachyon) that flowers from the very early days of spring (I have seen it and smelt its delicious odour in March) until the last leaves have fallen from the surrounding trees in autumn.

I have long ago filled the space allotted to me by the Editor for this article, and I awaken to the fact that the real gems of the water garden, the nymphæas, or water lilies, must be crowded into a few brief lines. The whole water garden exists for them, for are they not its aristocracy, its fairy queens and princesses. I think it was Mirabeau who said that "God gave to Woman two-thirds of all beauty." This may be so, but I think that when the vials of beauty were being poured forth it must have been by the waterside, and some was spilt on the surface and became water lilies. No flowers can create quite the same emotion in the lover of all things beautiful as do the water lilies, and none possesses quite the exquisitely moulded forms or purity of colour that is found in them. Orange hearts in crimson goblets. Golden jewels nestling in snowy whiteness. All the rich glow of ruby and garnet, the soft pink of the rose, and the delicate flesh tints of an artist's dream are combined with a beauty of form and purity of outline that Nature in all her wonderful works has never excelled and rarely emulated. To describe even a reasonable number of the best is impossible. I will therefore content myself with naming some that should always be planted when opportunity arises.

For water 1½ft. to 2ft. in depth: Atropurpurea, crimson purple; Aurora, rose flushed yellow to salmon; Ellisiana, bright rosy red, deeper in centre, sometimes rather shy flowering; Froebeli, wine crimson; James Brydon, very deep rose, brown foliage, a marvel to flower; the Laydeckeri varieties, fulgens, purpurata and lilacea; odorata alba maxima and its pink form Exquisita, both vanilla scented; W. B. Shaw, bright rose pink; Wm. Falconer, deep crimson, perhaps the best of all deeply coloured for shallow water.

For deeper water, 4ft. being deep enough to plant any variety, although many will, once started, find their way into several feet more and succeed: we have Colossea, delicate shell pink, fragrant; Escarboucle, rich vermilion, anthers and all; Gladstoniana, the noblest white; marliacea carnea, free flowering shell pink: m. rosea, glorious flowers of soft rose; tuberosa, a solid white flower that reminds one of an exquisitely carved marble, very fragrant; t. Richardsoni, an improvement as to size on tuberosa, but scarcely so free flowering, I think. The limits of space and not of really first-class varieties must end the list here.

The water and bog garden possesses characteristics that are found in no other department. It has within its compass an atmosphere all its own. The subtle niceties of colour blending and colour grouping are hopelessly impossible here. You may try it, but it will beat you in the end. All growth is luxuriant, all its denizens are adventurers, and will ramble far from their own appointed place if you let them. Restraint is an unknown quantity, and in the garden regions the water garden usually hangs suspended between luxuriant civilisation and beautiful savagery. Leave it uncared for and it will soon make of itself a glorious, but, to the gardener, maddening wilderness. But however mad or wild it may become, it will be beautiful still. Colour, reflected from the bank above, dyes the water below to a crimson or golden wash. The splash of the vole or stirring wind sends ripples across the waters and gently sways the floating gems upon its surface. The music in the rustle of the reeds and rushes, the white floating clouds reflected in its depths, the sombre shadows under the giant leaves and the riot of colour on every hand: all these and many more are the pleasures of the water garden from early spring until late autumn.

GEO. DILLISTONE.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE

EARLY-FLOWERING CHRYSANTHEMUMS, by Norman Lambert.

GARDEN PAVING, by R. V. Giffard Woolley.

EUROPEAN PRIMULAS.—II., by F. Barker.

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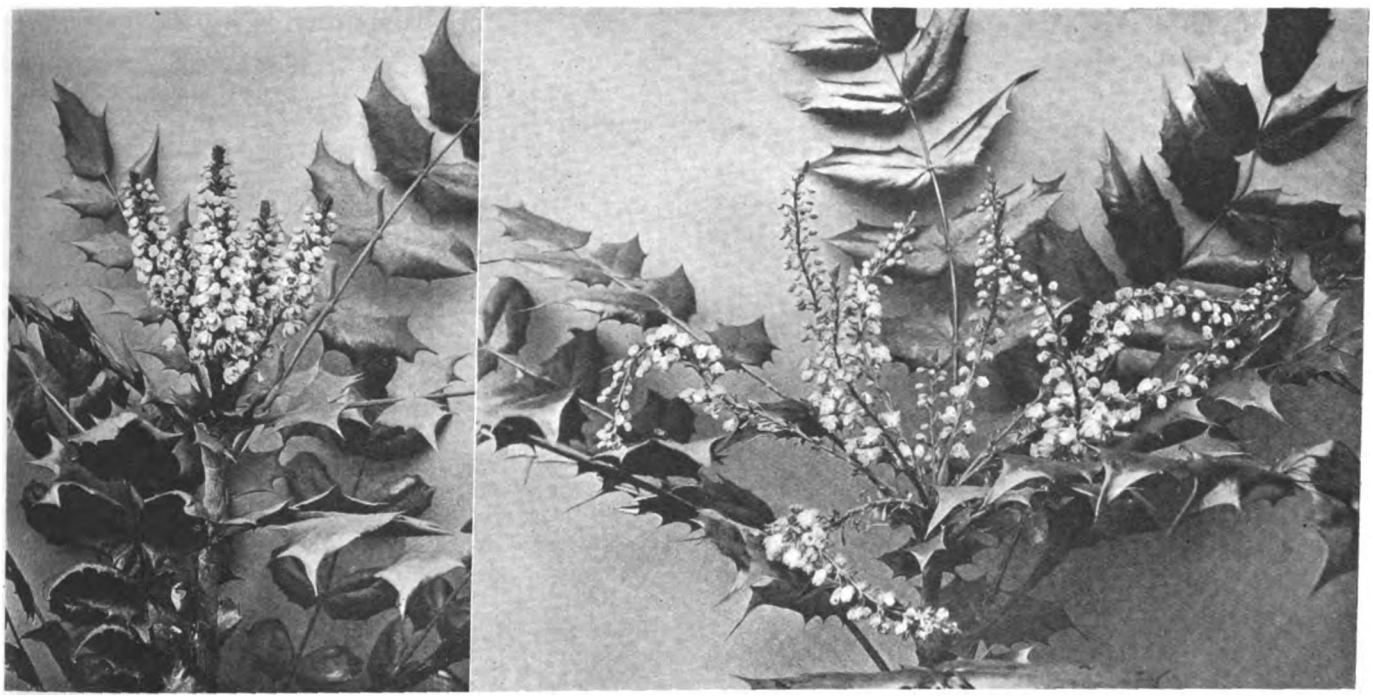
THE SO-CALLED MAHONIA JAPONICA

AS Mahonia—or, as it is more usually called, Berberis—japonica we frequently meet a fine evergreen shrub in the gardens of Great Britain as well as of the Continent. There are two or even more apparently distinct forms of it, of which one with larger, broader, more rounded and somewhat less spiny-toothed leaflets is known by the name var. Bealei. This one was introduced from China by Fortune in 1845, and Lindley described it in 1850, regarding it as identical with Berberis japonica Sprengel (1825) or Mahonia japonica De Candolle (1821). Fortune himself took the Chinese form for a distinct species (*Gardeners' Chronicle*, 1856, page 112), an opinion already held by Carrière, who described Mahonia Bealei in "Flore des Serres," X., page 166 (1854-55). Hooker, in following Carrière and Fortune, pictured the plant and what he called var. planifolia in the *Botanical Magazine* on Plates 4846, 4848 and 4852 (1855), from specimens sent to him from Messrs. Standish and Noble's nursery, where Fortune had sent his seed. Later, Fedde and most of the other authors have united the Chinese form with the Japanese one, calling the first M. japonica or var. Bealei.



MAHONIA BEALEI WITH ITS SOMEWHAT STIFF AND DENSELY ERECT INFLORESCENCE.

THE TRUE MAHONIA JAPONICA, CHARACTERISED BY LOOSE AND STRAGGLING FLOWER CLUSTERS

The last monograph of the genus mahonia, H. Takeda (in Notes, Royal Botanic Garden, Edinburgh, January, 1917) has been the first to explain that the true Japanese mahonia has nothing whatever to do with the Chinese forms cultivated in our gardens and called M. japonica. During my stay in the Arnold Arboretum from 1915 to 1919 I had the opportunity to study the material of the genus mahonia, and to see also the specimens investigated by Takeda. I have not yet published the results of my own investigations, but in this note I shall say what I know about Mahonia japonica, which even now is far from being sufficiently understood.

According to Ito (in Jour. Linn. Soc. Bot. XXII, 428, 1887) this plant does not occur spontaneously in Japan. Statements to this effect given by Miquel and Franchet et Savatier, or even Matsumura, are wrong. Keiske Keisuke Ito (translation of Matsumura, 1883) says: "This plant has never been found wild. It is said to have originally come from Ha ku san (mount) of the province of Kaga. But it is now everywhere cultivated in gardens." E. H. Wilson, who so carefully studied and collected the woody plants of Japan, did not observe a wild specimen, nor did he detect such a specimen in one of the Japanese herbaria. Takeda, too, states that the species has not yet been observed in a wild state, and that he "has seen no typical specimen of M. japonica collected outside Japan." He does not say anything as to the relationship of this species to others, and only under M. Fargesii he points out the resemblance of its leaves to those of japonica. In my opinion, M. Fargesii—or, at least, what I take for it—seems to be much nearer M. Bealei, while some facts seem to indicate a relationship of M. japonica to M. philippinensis Takeda. M. tikushiensis Hayata, too from Formosa, may be near to japonica, but, unfortunately, I know Hayata's species only from his description, and it is not yet mentioned by Takeda.

After all, I cannot decide the question of the origin of M. japonica. Most of the plants cultivated under this name are M. Bealei. Fedde, who apparently was not aware of the real differences between M. japonica and M. Bealei, did, in 1905, mention that Giraldi had collected several specimens of japonica in Shensi. I have seen no specimen of this collector giving proof of Fedde's statement. I presume that the plants Giraldi found belong to M. Fargesii. One is easily inclined to believe that M. japonica, like so many other plants, originally came to Japan from China. According to a Japanese garden book, a mahonia was introduced to Japan from China in 1684. Takeda, however, is not sure whether this was japonica or Fortunei, neither is he certain where the plant really came from. There is, in my opinion, a great probability that the real japonica did not come from China, but from Formosa, or even the Philippine Islands. It is or has been in cultivation in our gardens, but at present almost all the plants bearing this name belong to M. Bealei. I have, at least, hitherto never met with a flowering plant of the true japonica.

One of the flowering specimens here figured seems, however, to represent the Japanese species, and comparing it with the other picture of the true M. Bealei, we get a rather good idea of the different aspects of the two species. As Takeda first pointed out, the two plants "may show some resemblance in foliage under abnormal circumstances, yet an absolute distinction can always be seen in the inflorescences." The leaflets of M. Bealei usually are somewhat broader and upon the whole larger than those of M. japonica, which mostly possess one or two teeth more on the lower margin of the leaflet. The racemes of M. Bealei are, as a rule, rather stiff, erect, densely beset with flowers and with bracts not exceeding 4mm. in length, and the ovaries, according to my observations, contain

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three to four ovules. In our picture the inflorescences are still young, and may later become somewhat looser; but in M. japonica the racemes are always rather slender, straggling or somewhat pendent, more loosely beset with flowers and with bracts that measure from 5mm. to 8mm., the ovaries of the few flowers I could investigate containing from four to six ovules. I should like to know whether there is a distinct difference in the colour and size and perhaps the fragrance of the flowers, and in the colour and size of the fruits of the two species. I should be grateful to anybody who could send me flowering or fruiting specimens of what seems to be the true M. japonica, or of forms of Bealei not quite agreeing with the one pictured.

CAMILLO SCHNEIDER.

GORSE

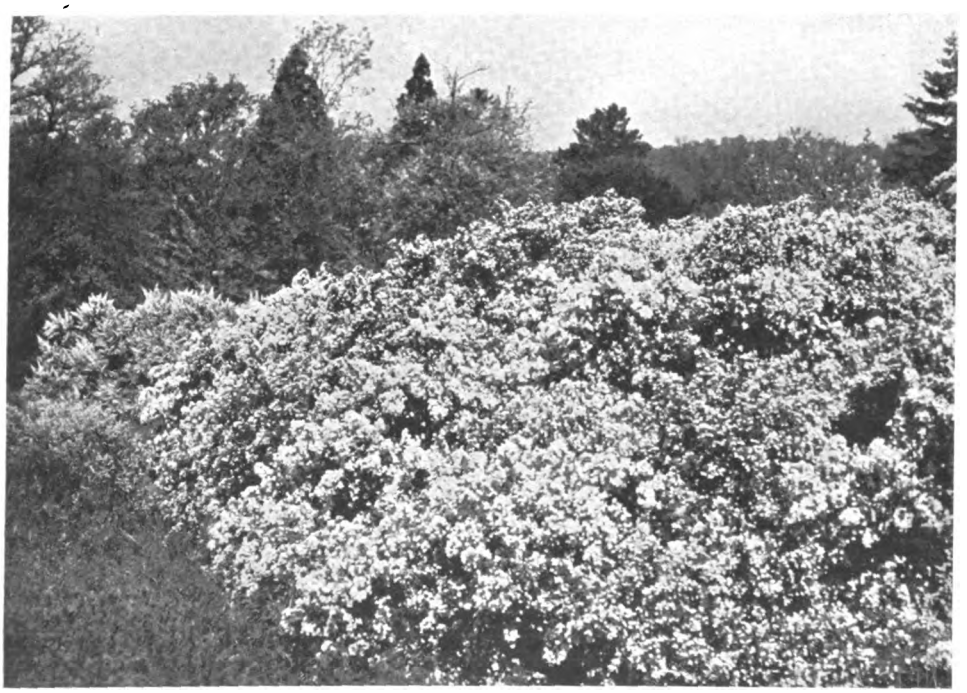
BY DR. R. LLOYD PRAEGER.

IN THE GARDEN THIS USEFUL GENUS OF SPRING SHRUBS IS OF EXTREME VALUE FOR PLANTING IN SITUATIONS UNSUITED FOR OTHER SHRUBS AND IN ADDITION IS MOST EFFECTIVE WHEN DRAPED WITH MASSES OF GOLDEN FLOWERS.

"WHEN the gorse is out of bloom kissing's out of fashion," runs the old saying; and if considered generically, not specifically, the botanical side of the analogy is fairly correct. For it takes more than one species of gorse to carry us the round of the seasons. The common gorse, Ulex europæus, puts forth tentative sprays of bloom (particularly in mild districts) from October onward; early spring sees it in full glory, and June is waning before the last blossom disappears. July presents difficulties, but by August the two remaining British species, U. Gallii and U. nanus, are beginning to flower, painting the heaths with gold in September and October, and still lingering till U. europæus begins again.

Ulex is a compact little genus of some twenty species, which evidently first arose in south-western Europe, for all the species save three or four are confined to Spain or Portugal (or both) and the others have a western range. The three kinds already mentioned as British are the most northern representatives, and of these U. europæus alone ventures north of Britain, being present in Denmark. I remember finding, with some astonishment, a few bushes on the East Frisian Islands (the discovery was appropriate, the occasion being my honeymoon and the date very near April 1st), but Professor Conwentz, to whom I showed specimens, scouted the idea of its being native there. It is reported as introduced into Bavaria also. U. Gallii resembles generally the last species, but is smaller and neater in all its parts, greener in colour, with flowers of a deeper gold. Its distribution in the British Isles shows its southern origin, for though it is abundant where it occurs, it haunts only the milder parts, mainly western England and Ireland. The third species, U. nanus, shows a more marked preference for a warm home, being confined to the south of England. It is the smallest of the three, a little prostrate shrub, with short spines and quite small flowers. None of the many Iberian species appears to be hardy, and one very seldom hears of any of them in British gardens. I have seen a few of them in Portugal, and it seems to be just as well for the peace of mind of English botanists that these gorses have not spread northward, as they appear to be among the most puzzling groups in the flora of the Peninsula.

An excessive and vindictive thorniness is characteristic of the whole genus. In the old days we were taught that thorns were a special provision of nature to prevent animals from eating the plants possessing them, and it was pointed out in support of this theory that thorny plants are especially characteristic of poor ground and desert places, where vegetable food is scarce. This was putting the cart before the horse. There can be no doubt that thorniness, representing as it does a restriction of growth, is an economical measure on the part of the plant, and a protection against undue loss of water, such as is likely to occur in deserts: the fact that it also protects against grazing beasts being quite by the way. The shrubby members of the pea family are to a great extent inhabitants of poor and dry ground, and in other groups besides Ulex we find thorny ends to the branches and thorns replacing leaves. The so-called needle whin of our moist heaths is an excellent example in the genus Genista, and G. hispanica, G. dalmatica and others look exactly like little gorses; Erinacea derives its name from its suggestion of a vegetable hedgehog; Ononis and other genera include thorny members in their family circle.



A GLORIOUS PATCH OF GOLDEN YELLOW PROVIDED BY THE DOUBLE GORSE.

But from the defiant groves of gorse what a wealth of glorious blossom bursts forth in spring! Where else shall we get such a blaze of colour, such an intoxicating warm fragrance! No wonder the story is told (whether true or not I do not know, nor does it matter) that Linnæus, coming from gorseless Sweden (or, as some sages sing, Dillenius, coming from gorseless Darmstadt), fell on his knees before so glorious a vision. And the story has a deep significance, for nowhere in the world, so far as my limited knowledge goes, is there anything that surpasses a field of gorse. Gorse and purple heather (the latter also a west European plant, and unknown, like the gorse, to the benighted inhabitants of central Europe)—these two, at their best, are without a peer. On Alpine slopes

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we find more intense pigmentation, more varied tints: but for sheer overpowering mass of colour, commend me Ulex europæus and Erica cinerea.

A particularly pleasing trait of the gorse (and, indeed, of the heather too) is that it flourishes on ground which without it might often be rather barren and desolate.

All the gold in Ballytearim is what's
stickin' to the whin;
All the crows in Ballytearim has a way
of gettin' thin.

But while the heather succeeds in this by sheer economy of growth — thin twiggy stems and tiny leaves, aided possibly by the beneficent companionship of root-fungi—the gorse has a special private fund on which to draw, which it shares in common with other leguminosæ. I refer, of course, to the bacilli imprisoned in the peculiar root-tubercles. These bacilli, as is well known, possess the power (denied to the higher plant) of directly assimilating nitrogen—that most precious of plant-foods; the gorse is able to plunder this store, giving in exchange food and shelter; and so the two live happily together to their mutual advantage. So far as one can see, the bacilli might easily escape from their prison and live independently; but the gorse and its companions, in the absence of their tiny friends, might well go bankrupt and have to migrate to some new home where a richer soil would give a better margin of profit on the annual turnover.

GORSE LOOKS ITS BEST IN THOROUGHLY ROUGH AND NATURAL SURROUNDINGS.

Although their upland habitat might suggest an especial hardiness for the gorses, their European distribution warns us that in Britain they are near the limit of their climatic range. U. nanus, indeed, frankly keeps to southern England. As regards the other two, the absence of U. Gallii from Scotland (except parts of the south) and Denmark suggests that it is the more tender, and W. J. Bean states so in his admirable "Trees and Shrubs." At the same time, it occupies on the hills a well marked zone *above* that tenanted by U. europæus. The severe winter of 1916–17, which decimated the bird population about Dublin and killed most of the foxgloves, played havoc with U. europæus. In Wicklow about half of it was killed to the ground; but U. Gallii was no worse hit, and, indeed, so far as my observations went, it came through better than its ally. The testimony on this question of other observers would be welcome.

It is just as well for the gorse, and all the worse for the farmers, that its spines are so efficient a defence against grazing animals, for when these are rendered impotent it is readily eaten, and makes an excellent and probably nutritive fodder. In some parts of England rough mills for bruising gorse are (or were) used. In the North of Ireland one of the many duties of the farm labourer used to be "knockin' whins"; they were beaten with a large wooden mallet in a wooden trough, and were then given to cattle. Why should not var. strictus (to be referred to later), which is soft enough to be eaten without pounding, be used as a fodder? It grows quickly, and would rejoice on ground too poor and thin for any other crop.

The leaves of the gorse are interesting both on account of their curious modification and because they do not seem to have made up their mind whether to take the form of a simple leaf (as in a few species of cytisus, a close ally) or whether to retain the trifoliolate leaf which is characteristic of so many of their relations, and which is presumably the ancestral form. This point is best studied in seedlings, for the young gorse begins its career with a number of small but well developed simple or compound leaves, before these become reduced to the mere spines or tiny scales which characterise the adult. U. europæus usually bears several pairs of trifoliolate leaves following the cotyledons, then a few flat simple leaves, and then the characteristic round spine-leaves. U. Gallii has usually one pair of compound leaves, followed by several pairs of flat simple leaves. But in both species the leaves of the young plant may be all simple or all compound, or simple and compound may be mixed irregularly. One is justified in assuming that these plants are losing their primitive (trifoliolate) type of foliage, and adopting instead small hairy lanceolate leaves like those of Genista sagittalis.

It is difficult in the garden to get any of the gorses to look really happy, for they are accustomed to thoroughly rough conditions—sun, exposure and a poor soil. In cultivation they soon get leggy, and end by looking like scarecrows and dying untimely. It is necessary to give them the poorest, driest, windiest place that one can find. Their garden value, indeed, consists largely in their capacity for furnishing unpromising ground of this kind, where few things would flourish. Much the best plant for the purpose is U. europæus flore pleno, the double gorse, which makes a beautiful display in spring if only it can be kept compact. An interesting though not showy plant is the Ulex strictus of Mackay, which also belongs to U. europæus. It is a "juvenile form," a variety which, like Peter Pan, has never grown up. It has an erect habit, the prickles are very short and so soft that one can grasp a branch in the hand. It flowers very sparingly at the tips of the branches, and is reported to revert—at least in part—to typical europæus if sown; but I do not know whether this statement has been made with reference to the results of self-pollination, or whether there may have been a crossing with ordinary europæus. The specimens seen in British gardens are presumably all derived from cuttings of the single plant which was found at Mountstewart in County Down about 1820 by a local nurseryman, Mr. Murray, from whom John White, the author of "The Grasses of Ireland," obtained it and brought it to Dublin, where J. T. Mackay saw it and described it (though very inadequately).

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HERBACEOUS PHLOXES

OF ALL OUR BORDER FLOWERS THERE IS NONE WHICH PRESENTS US WITH SUCH A WEALTH AND VARIETY OF COLOUR AS THE PHLOX.

WITHIN the last twenty years great progress has been made with herbaceous phloxes. Whereas the herbaceous phloxes of our boyhood were ungracefully tall, poorly coloured, had thin spikes and small flowers, the modern varieties are of stout, mostly dwarf stature, brightly and most differently coloured and have individual flowers as much as 2ins. across, grouped on large, stately, pyramidal trusses.

The chief raisers to whom we are indebted for these changes are Lemoine of Nancy, France, who has been working on phloxes ever since 1859, when the first novelties of the firm were sent out, also Pfitzer, Goos und Koenemann, in Germany, Ruys in Holland, and, in England, several specialists too well known to need mention here.

The herbaceous phlox has now become a first-rate border plant, owing to these improvements and to the fact that different ways of cultivation enable one to have it in flower all the summer through, from July onwards till September and October. Its range of colour is truly marvellous, extending from salmon and red to white, blue and violet, all exceedingly brilliant shades, linked up by all possible intermediaries — except that yellow does not exist. Easy culture and great facility of propagation also contribute to its great popularity. As a cut flower, although little has been said so far on the subject, it is also much to be recommended, not perhaps for the trade, but for private houses where the stems can be cut when required and put straight into water. It then keeps bright for several days and exhales a very sweet and gently penetrating perfume, most pleasant in the house.

HERBACEOUS PHLOXES ARE ALWAYS USEFUL IN THE BORDER.

Few other hardy plants, with as little care and trouble, succeed so well in the border or are so exceedingly brilliant as the phlox. With it, cultivation is reduced to the strictest minimum; every year, a simple liberal dressing of some light and highly fertilising material should be given in the spring at the time when the usual forking of the upper soil is done. No staking or very little, is required. The plant ranks also among the truest of perennials and is sure to come up year after year. A point on which it is nevertheless useful to lay stress is always to give the herbaceous phlox a rich, porous and warm ground and as open a situation as possible. In poor soils and too shaded places it gives thin spikes and small flowers and is rather susceptible to summer drought. A good way to maintain strong and healthy plantations is to establish young propagations as often as possible, and never twice on the same spot, or at least after a long interval. This is the secret of many successful growers. The plant being a gross feeder can thus grow vigorously and so resist the diseases which sometimes affect old and poorly grown plantations. In the herbaceous border, this desirable continuous shifting and propagation is not possible, but very liberal annual dressings act to a large extent in the same way. At all times and under all conditions, the plant benefits greatly from frequent stirring of the surface soil with the Dutch hoe or some other such implement, a practice which, by the way, saves much labour in watering during the hot season; as, indeed, it will do in the case of every plant.

The herbaceous phloxes present a great diversity as regards their heights. Some varieties, like Josephine Gerbeaux, will attain a height of 5ft., and some others, such as Tapis Blanc, rarely exceed 1ft. or 1ft. 6ins. The more useful for the border are probably those of about 3ft.—particularly as it is mainly in that height that the finest varieties are to be found. A good plan in establishing borders is to take advantage of this difference of heights by having phlox disseminated throughout the whole of the beds, in front, in the middle and at the back. As regards colour, a certain number of varieties, mainly in the scarlet and fiery shades, are sometimes somewhat spoiled by the sun. In that case, it is best to plant in partial shade; which is an easy matter, as phloxes look particularly well when forming a foreground in front of shrubs, walls, tall herbaceous plants, or under thin trees, etc. In all cases, only one variety must be planted at a time, since a mixture of varieties never gives the same brilliant display as distinct, showy patches of one colour.

To give a selection in the numerous varieties of phloxes now in existence is not an easy matter, but here are a few:

ÆGIR.—A fiery red, fine colouring, unaffected by sun.

ANTONIN MERCIE.—Dark lilac with white centre: large flowers, very free and distinct.

BARON VAN DEDEM.—A beautiful shade, orange scarlet, large pips. Has superseded the older Coquelicot.

ELIZABETH CAMPBELL.—Delightful light salmon, changing to pink, large flower. Ought to be in every collection.

EUROPE. — Snow white flowers of fine substance, with central rosy ring. Large compact trusses.

EVANGELINE.—Very rich salmon pink. A showy plant.

FRAU ANTON BUCHNER.—Probably the finest white in existence. Large trusses and flowers. Habit stiff and dwarf.

GENERAL VAN HEUTSZ.—A dazzling shade of salmon red with distinct white zone at the centre. A most effective variety.

G. A. STROHLEIN.—Loose branching trusses. Orange-scarlet with bright carmine eye. A nice shade.

HOMELAND.—A comparatively new variety with large trusses of brilliant orange, and pips distinctly red.

LE MAHDI.—One of the best of Lemoine's varieties and of magnificent colouring. Rich violet blue. A first-rate plant.

MARECHAL FOCH.—Probably the best crimson in existence. Large flowers. Eye darker.

MARIE JACOB.—Very large truss, pale lilac with white eye. Pretty and distinct.

MIA RUYS.—A beautiful white, dwarf, very large pips.

MRS. MILLY VON HOBOKEN.—Enormous trusses of salmon pink colouring. Fine plant.

MONS. KIND.—Bright orange-red, shaded copper. Good habit.

MRS. SCHOLTEN.—Large pyramidal trusses. Fine dark salmon pink.

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NEWBIRD.—Pleasing variety of recent years. Rich amaranth crimson. Large pips and spikes.

NICHOLAS FLAMEL.—Brilliant scarlet red with purple eye. Very large pips.

PANTHEON.—A comparatively old variety still popular through its beautiful and distinct rosy salmon colouring and good habit.

RIVERTON JEWEL.—Well shaped trusses of large flowers, mauve pink with brilliant carmine eye.

RYNSTROON.—One of the most beautiful phloxes. Enormous trusses on rather dwarf stems. Lovely soft rose colouring.

SEGRID ARNOLDSON.—A fine deep crimson of bold aspect and good constitution.

SELMA.—Of Dutch origin. One of the best of its colouring. Lovely bright pink with bright cherry red centre. A good doer.

THOR.—Rich salmon, suffused white and carmine eye.

Phloxes sometimes suffer from a pest, common among daffodils and other bulbs, called "eelworm" or "Tylenchus devastatrix." It is a small nematode about one-sixteenth of an inch long that attacks the plant on ground level and rapidly kills the upper part of it. The only remedy known is to cut the stems as soon as they show signs of ill health just below the ground level and to burn them at once, or better still to burn the whole of the plant. Phloxes are also attacked by a bacterial disease caused by the "Bacillus caulivorus," which affects the plant at the base of the stems and soon kills it. Plants that have been frequently transplanted and propagated, and given rich soils, are far less susceptible to these diseases and pests. In early spring the leaves of the phlox are often attacked by a fungus which gives the leaves a very crumpled appearance, but this can to a certain extent be kept in hand by the use of an appropriate fungicide. C. L.

SOIL ACIDITY AND PLANT GROWTH

BY T. EDEN (*Rothamsted Experimental Station*).

THE responsiveness of plant life to differences in the nutrient properties of the soil is everywhere manifested, and the importance of ensuring that sufficient of the various plant foods are present in the ground is realised; the highly important process of manuring is the natural consequence of such knowledge. It is not, however, so widely recognised what an influence "soil reaction"—and by that is meant the degree of acidity or alkalinity of the soil—has on the vigour, fruitfulness, and even the distribution of plant life.

Soil acidity or sourness is always associated with deficiency in lime, and in England at any rate the converse is usually true, that soil alkalinity is due to excess of lime or chalk, unless the soil reaction has been made alkaline artificially by the use of alkaline fertilisers. In America and Egypt there are vast tracts of land where excess of common salt has led eventually to a state of pronounced soil alkalinity. So far as this country is concerned soil acidity is liable to develop on all types of land where lime or chalk is deficient, though the presence of other basic mineral substances may to some extent remedy this defect. Water-logged soils rich in humus material under conditions of bad aeration and scanty lime and mineral content produce the so-called humic acids, and are characteristically acid. No other soils attain to such a high degree of acidity under normal conditions; moorland soil is a typical example of this class. Where lime is available, soils of a similar nature, waterlogged to the same degree, have their acidity neutralised, and owing to this and other changes consequent on their non-acidity, become productive fen soils. At the other extreme of soil moisture and humus content are the light sandy soils, which rapidly turn acid through sheer exhaustion of their lime supply by leaching out, *i.e.*, loss by drainage of substances dissolved out of the soil by the moisture it contains. It is estimated that under varying conditions of soil and rainfall from three hundredweights to half a ton of lime per annum is lost from an acre of cultivated land. Between the light sand and the peat there lie soils of varying mineral, lime, humus content and leaching propensity in which the phenomenon of acidity is present to a corresponding degree. There is, in the face of such conditions as those just described, little wonder that large areas of land untouched agriculturally or horticulturally are in a very acid state, and that to the farmer and the gardener the problem of counteracting the ever-increasing tendency to acidity is of the utmost importance.

The existence of soil acidity can often be surmised from the presence of specific weeds and natural herbage; more will be said on this point later. A chemical test is the surest means of settling the question, and a very simple and effective one is described by Professor Comber. In a test tube or small bottle place about a teaspoonful of dry soil and add a solution made by dissolving a few crystals of potassium sulphocyanide in alcohol. (This should be procurable at any good pharmacy.) The test is dependent on a colour change, so that methylated spirit is not satisfactory. When the soil is well covered, shake thoroughly and allow to stand until all turbidity has disappeared. The solution will remain colourless or only slightly tinged with brown if the soil is not acid, while a deep red colour of varying intensity will denote corresponding degrees of acidity.

The effect of soil acidity on the plant is best demonstrated on such highly acid soils as moors and heaths where no attempt has been made to preserve a balance of lime in the soil. Broadly speaking, plants fall into three groups with regard to their behaviour to conditions of soil reaction. These are:

(1) Plants which will tolerate only a small range in soil reaction and which flourish best in a neutral or slightly alkaline soil.

(2) Plants which in a similar fashion tolerate only a small range of soil reaction and whose optimum growth conditions lie in the region of slight acidity.

(3) Plants which will tolerate a relatively big range of soil reaction but which undoubtedly do best in well conditioned soil.

The first group contains many of the cultivated grasses, grain crops and leguminous plants, particularly lucerne and sainfoin. If the limit of soil acidity which these can endure is passed they fail. Clover in an acid field will be patchy and timothy grass grown with other species in a meadow will succumb to the competition for the necessities of life which takes place between it and hardier species.

The second group is small and specialised, and the heath family are among the most important members.

The last group comes between the other two in the matter of numbers, and in it are found those plants, like sheep's sorrel and spurrey, which are looked upon as indicator plants for soil acidity. As has been mentioned, by themselves they would thrive in a sweet soil, but they can more than hold their own against the less tolerant species in conditions of acidity. Finally, they cover a large portion of the ground and become the dominant species, though under conditions more favourable to their competitors they would themselves suffer almost complete extinction. Because of this competition and difference in tolerance, soils of different types with regard to acidity develop different types of flora if untouched by man. A few examples may be of interest. Marshy land where acidity is not prevalent will grow the giant reed, the bog myrtle and the bog bean, while in just the opposite circumstances one may expect the sphagnum moss, cotton grass and cranberry. A typical limestone woodland will generally contain a considerable number of ash trees; its grasses will be broad-leaved, its damp places sprinkled with forget-me-nots; while on its edge a number of the wild orchids may grow. A wood on an acid soil will have oak and birch overhead, hair-grass and sheep's fescue under foot, many kinds of sedges and rushes in damp hollows and on its outskirts a heather colony.

The soil of the garden, however, is seldom so extreme in the matter of acidity or alkalinity as virgin land, nor does the competitive factor enter to any great extent except in lawns. Nevertheless, the effects of varying soil reaction may be clearly traced in a number of instances. The following examples are chosen so as to illustrate the several ways in which the acidity or alkalinity may affect the plant. Changes in reaction may upset the balance of the different food constituents in the soil nutrient solution, with bad effects on the health of the plant Roots, too, are liable to injury by extreme conditions. It is in these two ways that, very probably, the majority of plants are influenced. But, as with wild plants, garden plants vary in their tolerance, so that while strawberries and bilberries thrive on acid soils, and deciduous fruit trees prefer slightly acid conditions, the gooseberry is easily injured by such treatment. The chestnut, azalea and blackberry, according to experiments conducted in America, are actually injured by liming.

A second way in which soil reaction may affect the plant is by cutting off from it entirely some necessary element of plant food. Two cases of this phenomenon have recently been mentioned in the correspondence columns of THE GARDEN under the head of change of colour in hydrangeas and chlorosis of fruit trees (February 7th, 1925). As explained, these effects are due to lack of iron, which is made non-available to the plant in the presence of excess of lime. To what has already been said two details may be added. The first is that the change from blue to pink flowers in hydrangeas commences while the soil reaction is still slightly acid; and, secondly, the effect produced by chalk which was quoted as safe, and that produced by lime which was cited as unsafe, is

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really only a question of degree. The former is much less effective than the latter in making the soil alkaline, so that while chalk will only in most cases alter the soil reaction sufficiently to cause depletion of iron to that degree which promotes change in colour, lime may push the reaction farther and cut it off altogether, bringing about severe chlorosis and death.

It is well known that certain families of plants have micro-organisms living in their root cells, and that each makes an important contribution to the means of livelihood of the other. It is of the essence of this phenomenon of symbiosis (=living together) that the good of the one is the good of the other. Consequently, another method by which soil reaction may affect a species is by rendering the co-partnership impossible. Already it has been pointed out that it is sometimes soil acidity and at other times alkalinity which produces harmful effects, and in symbiosis the same variety of behaviour is encountered. The roots of leguminous plants have small nodules on them containing bacteria which actively extract nitrogen from the air in the soil and lock it up in the cell tissue. These bacteria as a general rule require a non-acid soil. A comparison of the roots of beans or peas grown under well limed and poorly limed conditions will immediately show the harmful effect of the latter on the number and size of these nodules. A classical example of this preference for well limed soil occurs on the park grass plots at Rothamsted. Many of these plots have received the same manurial treatment year after year since 1856, and some, in consequence of the continuous use of sulphate of ammonia in abnormal doses, have been made very acid by leaching out of lime; from these plots legumes have disappeared entirely. In this connection it may be mentioned that the other largely used nitrogenous fertiliser, nitrate of soda, has the reverse effect on soil reaction. Ericaceous plants, like the rhododendron, also have a micro-organism, the fungus mycorrhiza, in their roots, but in order that this may survive, a slightly acid reaction is necessary. The work of Dr. Rayner on the common heather has made it clear that the fungus cannot live in the roots if lime is present in the soil. In such cases the heather never becomes a mature plant. It is highly probable that this, too, is a case of preferential soil reaction. Heather is always associated with acid soils, and when, as in certain parts of Derbyshire, it is found on limestone, further investigation invariably shows that thorough leaching has exhausted the surface soil of lime. The rhododendron is a parallel example, and the use of peat, with its acid properties, for bedding round the roots has therefore sound justification.

There remains one very important way in which soil reaction can influence the plant, that of changing its susceptibility to parasitic disease. Anything which lowers the vitality of the plant will aid parasitic attack, especially from fungi, and in some cases soil reaction will directly affect the fungus. The most striking example is afforded by finger-and-toe disease in turnips and club root of cabbages. This disease is definitely associated with soil acidity, and if the land affected is limed and cropped with some non-cruciferous crop for a year or two the fungus will be unable to withstand the change and will be stamped out. The other side of the picture is furnished by the potato, which in some soils is subject to a fungus attack causing common potato scab. Of a number of cases brought to the notice of Rothamsted during the past two years most could be directly traced to excessive use of lime. In this instance the potato can withstand without injury a degree of acidity which is fatal to the parasite. In America the use of sulpbur to render the soil more acid has met with remarkable experimental success on the very few types of soil that have been tried.

It will be evident from these remarks that generalisation with regard to soil acidity is difficult, but in the long run acute acidity will kill practically any plant. There is, too, a real danger of the wastefulness of acid soils being overlooked in gardening. Where something is known of the preference of the crop in question, allowance should be made in the matter of rotation and liming. In any case of doubt a simple trial with lime and without will give the observant gardener the information he seeks.

TUBEROUS BEGONIAS FOR BEDDING PURPOSES

BEGONIAS FORM ONE OF THE MOST ORNAMENTAL GROUPS IN OUR LIST OF CULTIVATED PLANTS. WITH THE ARRIVAL OF NEW SPECIES AND THE BIRTH OF NUMEROUS VARIETIES AND FORMS, THEY PRESENT A WIDE CHOICE TO THE CULTIVATOR. SOME MAY BE GROWN PRIMARILY FOR THEIR FOLIAGE, OTHERS FOR THEIR SHOWY BLOOMS. MANY PROVE EXCELLENT SUBJECTS FOR THE CONSERVATORY AND GREENHOUSE, WHILE OTHERS, AGAIN, ARE MORE SUITABLE AS BEDDING PLANTS.

BEGONIAS in all shades of yellow, apricot, orange, pink and crimson, either blended together or massed in one colour, form one of the most beautiful and effective of all bedding plants. Both tuberous and fibrous-rooted begonias are used for bedding purposes, but the former are more popular. Tuberous begonias are exceedingly showy bedding plants, are easily raised, can be obtained in a wide range of colour, and flower for a considerable period. They are particularly useful in that, even in a wet summer, they flourish and bloom well.

During the month of March tuberous begonias should be started if the best results are to be obtained. Where a greenhouse is not available, a hot-bed will answer the purpose in a satisfactory manner. Use shallow boxes filled with leaf-mould or a rich, light soil, and press the tubers lightly into the soil—they should not be covered. There will be an interval after the tubers are placed in the boxes before they start to grow, and during this interval very little water need be given so long as they are kept moist. When the shoots have reached a height of about ½in., gradual hardening off should be commenced. A cold frame is best for this purpose, but if there is danger of frosts the plants require to be protected by covering the frames at night with mats.

Early in June the plants will be ready to go out of doors, and should be planted in their permanent positions, between 6ins. and 12ins. apart, the distance depending upon the size of the plants.

It is unnecessary to plant in a sunny position, as begonias thrive very well although in partial shade. Until autumn frosts begin they will continue in flower, showing their first blooms as early as the middle of July. They need a great deal of moisture during the flowering period.

After they have lost their beauty they should be taken up carefully and dried. They may be safely kept through the winter if they are stored in boxes of dried soil in a frost-proof shed until the following spring.

The soil in the boxes in which the tubers are stored should be kept dry, but not bone dry, or the tubers may begin to decay. A little water given very occasionally will prevent this, but it is easier to overdo the watering when the tubers are at rest than to give too little. Exercise the greatest care therefore when giving water at this period.

Although they may be successfully grown from seeds, the seedlings have little value as bedding plants during the first season, but on the other hand the colours are often exceptionally good.

Both single and double flowered varieties are available, and both are attractive, with their gay colouring; but the single ones are to be preferred for use in beds. The reason for this is that the double varieties expand less freely.

There is a fairly simple method of propagating begonias which was largely favoured when named varieties were more popular. As this method is useful for increasing plants of any particular type and colouring, it is worth describing. Half bury the tubers in sandy soil in a box which should be placed in a warm house. When the eyes push out from the crown, lift the tubers and remove all soil. These tubers should then be cut through cleanly, and, in order to give the cut pieces a better chance, take care that there are two eyes on each piece of corm. Only large bulbs which throw up three or four shoots can be safely treated in this manner. If cutting is carefully done the plants will continue to grow on without a check. They must, however be placed in a warm house for some time after dividing.

To be successful with begonias they must be given thoroughly good treatment, but the results then obtained amply repay the labour expended.

Among tuberous-rooted varieties may be mentioned Snowdrift, which has double white flowers; General Allenby, with its crimson scarlet double flowers; Mrs. W. Cuthbertson, the flowers of which are frilled and are lilac-rose in colour, these are also double; and Queen of the Belgians with its large double flowers of cerise-pink colouring. J. W. MORTON.

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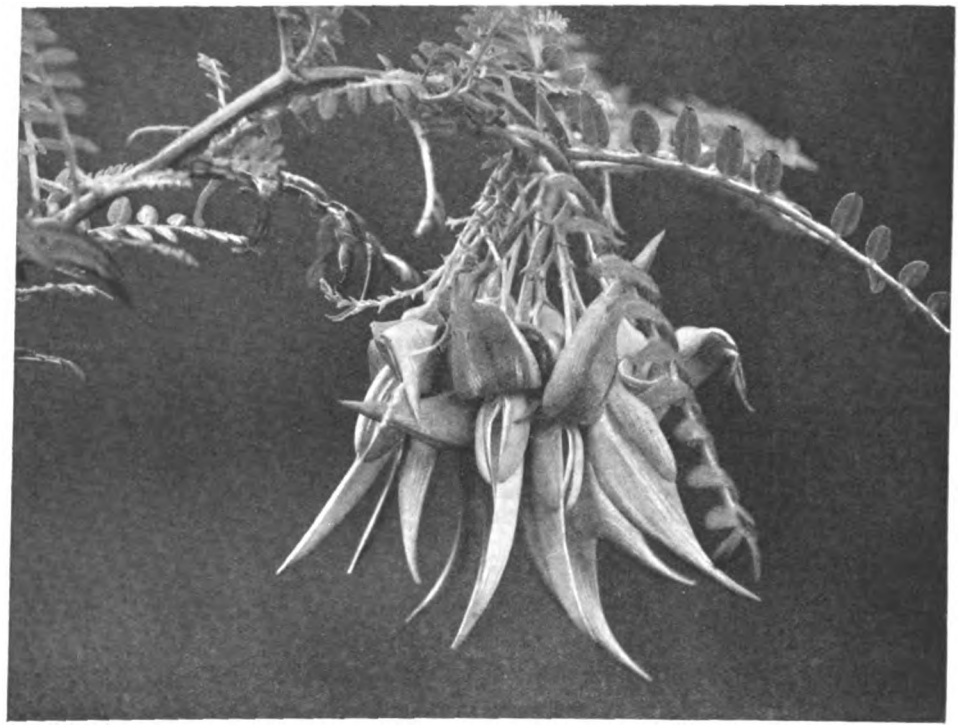
CONSERVATORY AND GREENHOUSE

ACHIMENES in many beautiful varieties are very useful for greenhouse decoration during the summer and autumn months, and it is surprising that they are not more generally used for this purpose. They can be raised from seed, which should be sown during February in pots or pans of light sandy soil, placing the seed-pans in a warm moist house with a temperature of 60° to 65° Fahr. The young seedlings should be pricked off into well drained pans of light rich soil; they should be kept shaded from too bright sunshine, and when they are about 2ins. in height may be placed several inches apart in their flowering pots or pans. As they are shallow-rooting plants, pans are well suited for their successful cultivation. Excellent examples can also be grown in 5in. pots. They should be grown on without any check in a temperature of about 60° until they are nearly in flower, when they should be accustomed to cooler conditions before they are removed to the greenhouse. If well grown they should flower towards the end of summer. The named varieties are grown from rhizomes which have been stored in dry sand over the winter. They should be started some time during February by laying out to start in leaf-soil and sand in shallow seed boxes, in a temperature of 60° to 65° Fahr., taking care not to over-water them until they have made some growth; When this is some 2ins. in length they should be placed in their flowering pots or pans, spacing them out from 3ins. to 5ins. apart, the greater distance for the stronger-growing varieties, such as A. longiflora and its varieties. Their subsequent cultivation is on the same lines as that advised for the seedlings. Free drainage and a light rich compost are essential for success. Achimenes, especially the more slender-growing varieties, are excellent for filling hanging baskets; indeed, A. coccinea always does better in baskets than pots. They are very subject to attacks of white fly and begonia mite; the former must be kept in check by fumigating with hydrocyanic acid gas or some other approved remedy; the begonia mite can be prevented by the occasional use of the sulphur vaporiser.

CLIANTHUS DAMPIERI (Glory Pea of Australia).—This plant has always, and not without reason, been regarded as difficult to cultivate successfully. Plants raised from seed and grown on their own roots are very uncertain, but by grafting them on seedling stocks of Colutea arborescens (bladder senna) one has a much better chance of growing this plant successfully. As grafting is done when both plants are in the seedling stage, it is a very delicate operation and requires considerable skill on the part of the cultivator. The seeds of the colutea should be sown about ten days before the clianthus, placing them in a warm house with a temperature of about 60° Fahr., the clianthus being sown in the same temperature. When fit to handle the coluteas should be pricked off singly into thumb pots, taking care to leave the swollen hypocotyl above the soil. The operation consists in cutting out the leading growth or young stem from between the leaves of cotyledons; the swollen portion should then be split downwards with a sharp razor, the tiny seedling clianthus should then be cut off and trimmed to a wedge shape and inserted in the slit made in the stock, afterwards binding it together with a piece of soft bass or thread. If the worked plants are placed in a close warm case they should quickly unite, when they should be removed from the case and stood on the stage well up to the roof glass, keeping them shaded for a few days.

As they require it they should be potted on into well drained pots, taking care to disturb the roots as little as possible. As they increase in size they should be gradually accustomed to an ordinary greenhouse temperature. They may be grown on into 8in. or 9in. pots, training the shoots up to wires, and are also excellent for filling large hanging baskets. The writer has obtained excellent results by planting them out on a well drained and raised bed in a greenhouse. This plant is very subject to attacks of red spider; this must be carefully guarded against, as, once affected, it is very difficult to get rid of them, as the leaves are closely covered with fine silky hairs, which give the whole plant a silvery grey appearance.

CLIANTHUS PUNICEUS, which is a native of New Zealand, is a very different looking plant from C. Dampieri, and, unlike that plant, its successful cultivation presents no difficulty. In the west it grows freely and makes a large plant outdoors against a warm wall. It is easily raised from seed or cuttings, the latter rooting readily in a close case with slight bottom heat. Good specimens may be grown in 8in. or 10in. pots, but this plant is only seen at its best when it can be planted out in a cool house and trained up a back wall or pillar. This species is liable to attacks of red spider, but they should be easily prevented by a vigorous use of the syringe.



A FINE SPRAY OF CLIANTHUS PUNICEUS FROM NEW ZEALAND.

LATHYRUS PUBESCENS. — This beautiful climbing plant is a native of Chili and is an ideal plant for the cool greenhouse. In the south and west it is hardy when planted against a warm wall. It is surprising that this beautiful plant is not more generally grown, as its successful cultivation presents no difficulty, and its sweet-scented, dark lavender-blue flowers are very attractive and are useful for a supply of cut flowers. To have it at its best it should be planted out in a well drained bed or border, and the shoots trained up a back wall, or to wires under the roof glass; a light position is essential, and the writer has grown it well planted out on a raised bed in a carnation house. The seed should be sown in a temperature of 50° to 60° Fahr., in which they quickly germinate. The young plants should be grown on in pots until they are about a foot high, when they may be planted out in their flowering positions. They grow quite well in any good potting compost, and are at their best the second and third year from seed sowing.

LATHYRUS SPLENDENS is a native of California, and is a very beautiful plant with dark red flowers. In the west it succeeds outdoors when planted against a warm wall; in other parts of the country it requires the shelter of a cool greenhouse. This fine plant is best raised from seed, but can also be propagated by means of cuttings, which root in a close case in a cool house. The seeds germinate readily in slight heat, and, like L. pubescens, the young plants should be grown on in pots until they are large enough to plant out in their flowering quarters. I have found it succeed best planted out on a raised bed and the slender shoots trained to wires under the roof glass; or it may be planted at the foot of—and trained up—a sunny back wall; in the latter position it is seen to better advantage. This plant is by no means so easy to do well as L. pubescens, and at present is scarce in cultivation; this is unfortunate, as it should be easy to procure seeds from its native country.

CAMELLIAS, at one time great favourites, have been out of favour for many years, and yet there are few more handsome plants for planting out in a large conservatory, and they have the advantage of being perfectly hardy in an unheated house. In recent years there has been a brisk demand for them, especially for the single forms, of which there are now many beautiful varieties, such as C. magnolæfolia Lady Clare, Kimberley, White Swan and C. japonica grandiflora (Mrs. Sander), to mention only a few. C. rosæflora is very charming, with small double rose coloured flowers and, of course, the best of them all, where room can be found for it, is C. reticulata, with its large semi-double rose-red flowers. J. C.

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SIMPLE GARDENING

FIGS.

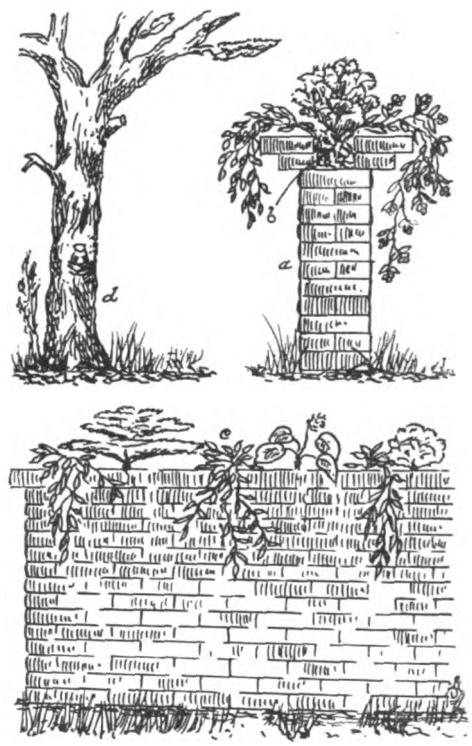
AN old fig tree in an old garden seems to be quite a part of it. Some old specimens bear well, others do not. I have grown, with equal success, trees over one hundred years old and quite young specimens because I was able to apply the right treatment. In the southern counties the trees, on good walls, rarely require any protection in the winter. In the northern counties it is advisable. Old specimens not fruiting satisfactorily may be overcrowded with long-jointed, unripe branches every year, or the roots may be rambling in a rich soil intended for vegetables near by. The inexperienced cultivator, wishing to grow figs outside, should select the variety Brown Turkey, because it is hardy, fruitful and of high quality. The next consideration should be the site for the tree. Of course, a high wall facing south is the best one. One sees old specimens with their branches trained on walls facing south and west respectively, the tree being planted in the angle of the walls. The rooting space must be restricted. Six feet by 3ft. 6ins. and 3oins. deep will answer as a border for a tree for many years. The drainage should be good, the turfy loam too; manure is not required, but some old mortar rubble is. The new bed must be made very firm while the soil is rather dry. Then ordinary watering and a surface dressing will do for the summer treatment for the roots. The branches should be trained 18ins. apart, very sappy bits should be pinched out altogether, also the ends off the shoots when the latter bear five or six new leaves and embryo fruits. Do not cut fig branches.

FIBROUS ROOTED BEGONIAS FOR THE GREENHOUSE.

In recent years the fibrous-rooted begonias have been much improved; the strains sent out by our nursery and seed firms being pure and reliable. Those persons who are not able to procure, or grow, the tuberous begonias or who prefer the fibrous ones, should not hesitate to grow a number of plants in pots. It is rather late in the season now to sow seeds, so the best plan is to make a selection of the tiny seedlings already in the pans, perhaps, for bedding out purposes, and, in due course, pot them separately. There are several fine colours on the market, I name three only: Fairy Queen, in pink and white respectively, and Coral Pink. There are crimson shades, but these are not as attractive in a greenhouse as the pinks, and a good white enhances their beauty besides being most useful for staging between pinks and other colours in the greenhouse that would not harmonise. Not only during the summer, but the early autumn months, too, good strains of the fibrous-rooted begonias continue to flower. Where the turfy loam is of a heavy nature a greater proportion of rotted leaf soil should be used in the compost. In the case of sandy loams less leaf-soil should be mixed with it. Re-pot the tiny plants as they need more rooting space, till they occupy 5in. and 6in. pots. These are quite large enough. Give the plants frame treatment during the month of June, then transfer them to the greenhouse. Do not use strong manures at any stage. Stimulants should be given in weak doses and seldom. Stopping is not necessary.

PLANT-GROWING ON OLD WALLS.

The accompanying sketches show how rock plants are grown on an old wall in a Hampshire garden. It is now nearly forty years since I first saw this particular wall; the plants had, then, been recently planted. I saw the wall a few months ago and many of the original plants, some of the latter being more than 2ft. across. The flowering subjects blossom splendidly. The sketches show how the wall is prepared for the plants; the wall itself is partly under the spreading



branches of large woodland trees. The letter *a* shows end of wall, *b* the approximate space to contain compost and roots of plants. At intervals of a few feet the top courses of brick are tied by cross bricks. The front of the wall is shown at *c*, and the woodland trees at *d*, on the south-west side of the wall. Old walls, treated in this way, are charming. When the compost is first placed on the wall care should be taken to firm it thoroughly and to select for the purpose tough, fibrous turf. A few half-rotted leaves are better than peat for adding to the loam as peat does not readily absorb water after it becomes dust dry. Any old favourite plant may be included, but for the benefit of the inexperienced a beginning with the following kinds will answer the purpose. Alyssum saxatile, Achillea rupestris, Arabis albida, Arenaria montana, Aubrietia excelsa, Campanula garganica, Dianthus fragrans, Gypsophila repens, Hypericum polyphyllum, Linum flavum, Nepeta Mussini, Œnothera mexicana, Phlox stellaria, Saxifraga apiculata, sedums and thymes in variety.

THE CARE OF SUMMER BEDDING-OUT PLANTS.

Where glass accommodation is very limited and a rather big stock of bedding-out plants is required, much skill is required in dealing with the plants at this season so that they will be nice, sturdy specimens when the time comes to plant them in the garden. Three good plants are more valuable than five poor ones, so it is wiser to grow a limited number and grow them well, than a surplus which would result in weakly plants. In many small gardens the wise cultivator will make use of a few empty boxes, such as orange boxes, knock out the bottoms and place them on a bed of ashes, or retain the bottoms and place a layer of ashes in each one. It is a very easy matter to cover the boxes at night with sacks, scrim or mats. The full exposure of tender plants, after careful treatment under glass, generally results in a serious check, whereas the boxes will prevent such checks. Cuttings, recently rooted, should be re-potted and retained under glass till they possess a number of roots touching the sides of the pots before they are transferred to outside boxes or cold frames. Very careful watering is necessary and all water used should be placed in a frame, a greenhouse or a sunny corner outside for several hours before it is applied to the plants. Some rotted leaf-soil is very beneficial in the case of tender seedlings and newly-rooted cuttings.

THE TREATMENT OF AZALEAS AFTER FLOWERING.

Many plants are spoiled every year because they are not properly treated after the flowers have faded. While the flowers remain fresh water is applied, mostly, when it is needed, but afterwards the plants are frequently neglected in this respect; they are also allowed to suffer through being infested by red spider and thrips, the two principal insect enemies of these plants. Even while the flowers are fresh the new shoots are growing and, later on, they mature and bear flower buds in numerous cases. If any plants need re-potting, this work should be done at once. Very fibrous loam and peat in equal proportions with a free addition of coarse sand form a suitable compost. The old ball of soil must be thoroughly moistened through before re-potting is done and the new compost must be made firm. Good drainage is essential. Manures are not required. Careful watering and daily syringings will ensure clean, healthy growth. Early in June the plants should be placed outside on slates or ashes in a cool position shaded from the noon sun and facing north. By September the new shoots will be ripe and flower buds formed. I refer to Indian azaleas mainly. GEORGE GARNER.

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CORRESPONDENCE

MODERN LUPINS.

SIR,—Since publication of the article under the above title, which appeared in THE GARDEN, February 21st, I am reminded by a peep into Kelway's "Manual of Horticulture" (1901 edition) that so far back as the year 1898 Lupin Somerset was exhibited by Messrs. Kelway and Son and received an award of merit from the Royal Horticultural Society. This was the first recognised hybrid between Lupinus polyphyllus and L. arboreus, and the first herbaceous lupin of a clear yellow colour. In all fairness, Messrs. Kelway's part as pioneers in the production of the modern race of lupins should have been referred to in my article, and I crave leave to rectify an omission for which there can be no justification. Somerset, as I can very well remember, was received with open-armed welcome, and many were the speculations as to the possibilities which this new "break" opened up. During the dozen years or so immediately following the advent of Somerset, Messrs. Kelway and Son worked in their characteristic manner which has made them so conspicuously successful with many popular families, and in the case of the lupin resulted in the production of a fine series of the hybrids, ten of which are described in the Manual of 1913. Canary, as might be anticipated, is clear yellow, but Belle of Huish, Coronation and Phyllis Kelway all gave us a foretaste of the fine blendings of coppery, bronzy and orange tints with lighter yellow which have of more recent years made the modern lupin the highly favoured flower it undoubtedly is. Others of this set are Huish Beauty (purple with a touch of yellow on the standard petals) Langport King (a variety which varied in tint from base to tip of spike, embracing blue, carmine and some white). Porcelain Blue has flowers of the shade indicated by its name with some white in the standard petals. Punchinello is mauve and yellow, and Rod of Ivory is ivory white and creamy yellow. These, or most of them, have the evidence of their hybrid blood plainly imprinted upon them, and some hanker after the arboreus habit.—L. I. ATRIS.

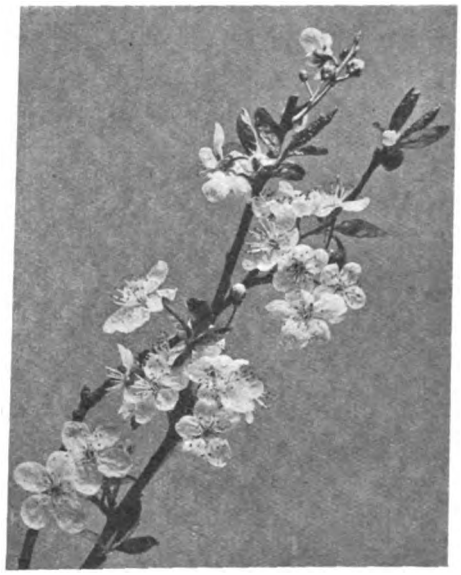
DIGGING AND TRENCHING.

SIR,—The letter from "J. H." (page 107), is interesting, but the suggestion it contains most decidedly does not agree with my experience of well over forty years duration, on ground that is practically all that heavy, poor, tenacious stuff termed "London Clay." If "J. H." can find a much worse medium on which to grow vegetables in the way of soil, well, I should rather like to see it. Yet! This is the ground that has borne the vegetables of the grower to whom he refers. When I first came to Aldenham those many years ago I was informed that the old kitchen garden was "worked out," and it was a poor bit of ground, with but a few inches of impoverished soil on the surface, and this had been scratched over for something over 100 years. I was not satisfied with this statement, and immediately trenched right into it to bring the deep subsoil (clay) to the surface, a practice I have always advocated, and that kitchen garden has been the primest area for the production of the Aldenham exhibition vegetables! I came to the conclusion years ago that the more "poverty struck" the soil, the more need there was for deep trenching and the inversion of the lower spits to the surface, where sun, air, rain, snow, frost, etc., could all play their part in rendering it properly fertile, over and above the fact that such method permitted the working in at the deeper levels of material that would help to lighten the mass, and feed the plants, as well as providing the deep root run so necessary for the proper growth of vegetables in the majority of cases. We have always adopted this principle at Aldenham, and I cannot, in face of actual results, agree with the contention of your contributor, nor alter or modify my previous advice.

If "J. H." would like to see the soil and the area referred to, we should be pleased for him to see it, and the method applied, for, with the results attained, we can be proud of the method, for it has proved a surprise to many who have held similar views to those of "J. H."—E. BECKETT.

PRUNUS PISSARDII.

SIR,—The illustration below of a spray of Prunus Pissardii shows, I think, the beauty of this species. The pinky white blossoms are especially beautiful and show up in contrast to the almost blackish bark of the twigs. The foliage is also of extreme value



PINKY WHITE BLOSSOMS OF P. PISSARDII.

in the shrubbery owing to its coppery purple tints, which almost rivals those of the copper beech.—A. J. PEARSON.

OSMANTHUS DELAVAYI.

SIR,—Mr. Ballard does well to demur (page 133) to my suggestion of Osmanthus Delavayi as a hedge plant, which was not warranted by experience, for I have never seen that charming plant put to that purpose. Moreover, I have since been told that it is not easily propagated by cuttings, which would prove a difficulty in raising a sufficient stock. The fact is that, being disappointed in the meagre crop of berries borne by Lonicera nitida, its amethyst berries constituting in my judgment its only claim to be reckoned as an ornamental shrub, I made random mention of O. Delavayi as a substitute, it being in full flower at the time of writing. A feeble excuse, I own, but it must serve in default of a better.

If I had occasion or room to plant a garden hedge, it should be made of Ribes sanguineum, being led to that conclusion by the behaviour of a large bush in the grass plot before a farmhouse in this neighbourhood which has been a joy to behold for very many springtimes in succession. Standing about 7ft. high, it is closely clipped annually in the form of a dome, yet this treatment does not interfere with the profusion of crimson bloom which it bears year after year. Cuttings of the flowering currant set in September or October strike without fail in the open. There is a wide range of colour in the varieties, from blood-red to nearly pure white, and the hybrid R. Gordonianum might be used to contribute a blend of soft orange.

In common with many other spring-flowering shrubs, O. Delavayi has responded to the abnormal warmth and wet of the past winter by starting its display a full fortnight earlier than hitherto recorded. It began here on March 5th. It appreciates a dressing of lime in the soil.—HERBERT MAXWELL, *Monreith*.

SUCCESS WITH GARDEN PEAS: AN APPRECIATION.

SIR,—I should like to thank Mr. Edwin Beckett for his very timely and interesting article on garden peas. Coming from the pen of one who is the foremost and most successful exhibitor of our time, it is well worthy of the close attention of those who grow this, one of the most useful of all vegetables. It is a fact, as the writer has stated, that one meets with two classes of growers—one who, no matter what improved sorts are introduced, will persist in sticking to the old sorts of peas, that were, undoubtedly, good thirty or forty years ago, but which have long since been outdistanced by immensely better varieties. Talk to these friends about the excellence of modern sorts, and you are immediately met with the rejoinder, "Ah, give me some of the good old sorts like American Wonder and Gladstone." They have nothing to say for the more valuable introductions of the time in which we live. I venture to say that many readers who have had practical experience of the Gladstone pea will be quite in accord with what Mr. Beckett says in regard to its being uncertain in its habits and poor in quality when compared with others of Duke of Albany type. I well remember Mr. Beckett's opinion of the Gladstone, and it is set forth in his book (page 180), "Vegetables and Their Cultivation," now before me. But I think last year, with its long spells of cold and wet, disillusioned many who grew the Gladstone. At any rate, some whom I know, who pinned their faith to it, especially for exhibition, are now looking to other varieties.

No one knows more of the immense value of trenching ground than Mr. Beckett. He practises at Aldenham what he has long since preached, and the success of his work has followed him to the exhibitions of the R.H.S., Shrewsbury, Southport and elsewhere, where those high-class vegetables, so superbly staged, were the admiration of thousands. In my experience of gardening and of shows, extending over very many years, no one, in my judgment, has done more to raise the tone of the vegetable section in the exhibition arena. As a friend of mine said in speaking of the Shrewsbury Show of 1924, at which Mr. Beckett eclipsed even himself, "Nothing but the best will do for Beckett."—W. LINDERS LEA.

LACHENALIAS.

SIR,—May I be allowed to point out an error in the report of the R.H.S. Show of February 24th, as given in THE GARDEN? The title of the illustration "Lachenalia" is misleading and should read "Excelsior Seedlings," as there is a number of varieties in this strain. Also Nelsoni has been in commerce for many years and cannot be described as "raised quite recently." It received an award of merit in 1887, while Siam received a similar award last year.—JOSEPH JACOB.

[We regret the errors and thank our correspondent for having pointed them out.—ED.]

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NOTES FROM CONTRIBUTORS

ST. DABEOC'S HEATH.

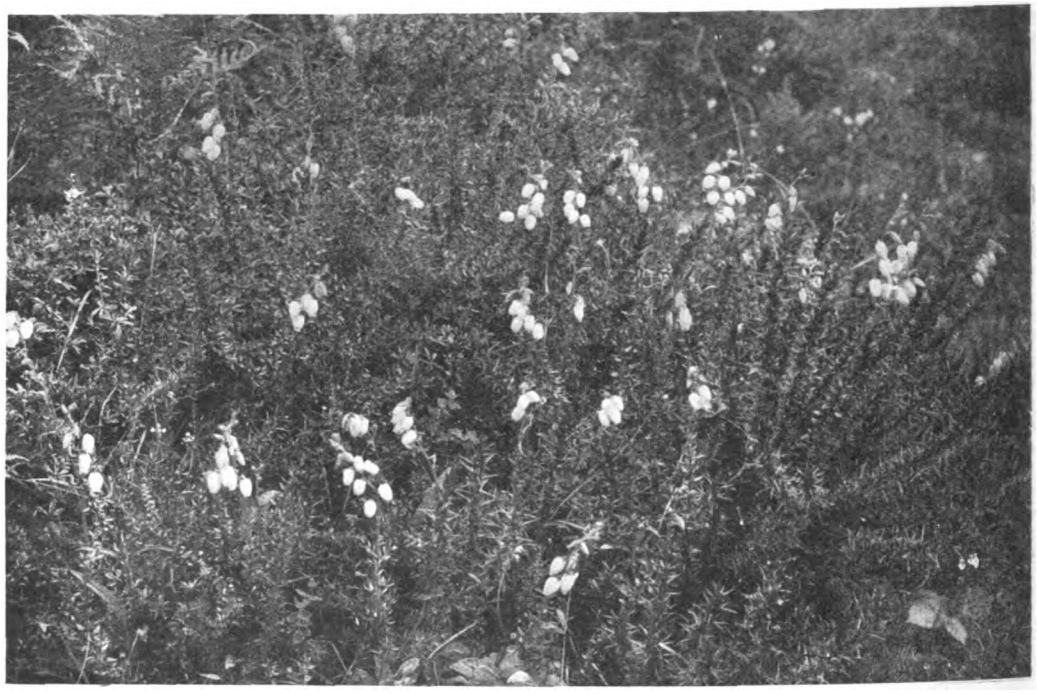
I WAS glad to see in THE GARDEN for February 7th (page 75) your contributor "A. T. J." singing the praise of St. Dabeoc's Heath (or, to quote his title exactly, St. *Daboec's* Heath). It is undoubtedly one of the best of all the smaller ericaceæ. It is as easy as possible, has a better and less straggling habit than most, and a longer flowering period than any. In Connemara, where it is abundant over a large area, it prefers the drier places, mingling with E. cinerea, E. Mackaii and Calluna on banks and delighting in growing up through the dense cushions of Ulex Gallii that populate the less boggy parts. In May it is already in flower, and in October bloom is still frequent. It does not vary much in nature. Darker or lighter shades of blossom occur, and twice I have found a white-flowered plant. Naturally it grows straggly, but, like many other species, it is much more bushy and compact in the garden. Though in its Irish habitat it occupies an area where frost is rare and slight, in the Pyrenees it occurs high up where the winter is severe. In our gardens it appears capable of withstanding without inconvenience any weather that comes.

A word as to its name, both Latin and English. St. Dabeoc was a well known Irish saint of the fifth or sixth century, and abbot of Lough Derg in Donegal, a spot still highly venerated and a noted place of pilgrimage for the devout. His name appears in various forms in ancient manuscripts, but while the prefix may vary, the root word, *Beoc* or *Bheoc* persists, and (this is the point I wish to make) *Bœc* is never found, and would be, indeed, impossible as an Irish word. The first connection of the saint with the beautiful heath which bears his name occurs in connection with the discovery of the plant in Ireland about 1699 by Dr. Edward Lhwyd, Keeper of the Ashmolean Museum at Oxford. This was announced in a letter from him to Dr. (afterwards Sir) Tancred Robinson dated August 25th, 1700 (and eventually printed in the Philosophical Transactions for 1712). He did not there mention any name for the plant, but John Ray, in his "Historia Plantarum" (Vol. III, Dendrologia, page 98) quotes him for the statement *Erica S. Dabeoci Hibernis*—"the St. Dabeoc's Heath of the Irish": this was in 1704. When Linnæus came along with his binomial names ("Species Plantarum, ed. 2, page 509, 1762), he quoted Ray as above, but named the plant, not Erica *Dabeocii* as he ought to have done, but Erica *Dabœcii*. How this happened it is impossible to say—perhaps it was a *lapsus calami*, perhaps an uncorrected compositor's error. (Even Linnæus could nod, for, as a matter of fact, he misquotes Ray, writing *Dabeci* instead of *Dabeoci!*). But the damage was done, and when David Don in 1834 placed the plant in a separate genus, he followed the Linnæan spelling, and called the genus Dabœcia instead of Dabeocia, being no doubt unaware of the facts of the case. Under the international rules of botanical nomenclature a name once duly given cannot be changed, even if given in error. So if we want to be strictly law-abiding, Dabœcia must stand as the botanical designation. But if we cannot now make the Latin name right, we certainly have no justification for making the English name wrong, and the plant remains St. *Dabeoc's* heath. Even as regards the Latin name, it seems a not very serious crime to follow C. Koch ("Dendro-logie," II, 2, page 132), who in 1872 corrected the name to Dabeocia. The plant is one of that very interesting group which includes the arbutus, London pride and Cornish heath—that grows in the Pyrenees or along the Mediterranean, and also in south-western England or in Ireland, and which appears to be a relic of a time when a continuous coast line and a milder climate allowed them to spread freely along the western edge of a larger Europe.—R. LLOYD PRAEGER.

[The mistake in the title of the article in our issue of February 7th was due to a printer's error.—ED.]

PABCO THERMOGEN MULCH.

RECENTLY there has been a great deal said about this new mineral mulch, which appears to have proved a great success on the pineapple farms of America. To test its efficiency an experiment was conducted in these gardens with Tomato Golden Queen, with a view to comparing the amount of water supply and weeding necessary between two observation beds, one of which was dressed with the mulch. The result was very promising and showed that the mulch minimised evaporation, with obvious benefit to the soil and considerably reduced the necessity of watering. The growth of weeds was made impossible and the ground surface did not cake. The mulch appeared to have some influence on the plants, for the growth was more vigorous than the check bed and the fruit ripened quicker. The yield was also greater than the unmulched bed.—R. LEDLIE, *Government Horticultural Gardens, Lucknow.*



THE ST. DABEOC'S HEATH, OF MORE OR LESS STRAGGLING HABIT.

MENDEL TULIPS.

NO retail British list that it was my fortune to come across in the autumn of 1924 contained any offer of this new race of tulips, either in separate varieties or in mixture. Hence I am possibly not far wrong when I suggest that few people know much about them.

They are the result of crossing Duc van Thols with Darwins, and were one of the last big contributions—if not the very last—that the now defunct house of Krelage of Haarlem made to our garden bulbs. I am trying some under glass and some in the open ground. Those under glass were bought as "mixed." The few named varieties which I "ran to" were very much more costly and were all planted out of doors. Of these more, when I see how they behave and what they are like. The mixed ones, grown in pots under glass have been a decided success. One hesitates to make any sort of ex cathedra pronouncement upon their future with the limited experience of one season, but I feel I am well within the mark when I advise those who like to have tulips with decent stems in the early part of February to give them a trial. I mean those who, like myself, have but little heat at their command. They know full well the sight of arrested growth with swollen looking stunted blooms bursting out of bits of green, which in happier circumstances would be stem and leaves. They know the pitiful sight only too well and "learned" by repeated failures have given up trying to grow them. Mendel tulips hold out the olive branch of hope. That, at least, is my summing up of my present experience. Treated in every way like some early-flowering varieties which had been planted for comparison, they threw up decent stems and good flowers, while they (the ordinary earlies) were miserable failures. There were no yellows, but there were all manner of red shades. Some were taller and some shorter. Some had quite an agreeable perfume. To parody Lancelot Brown I would say of these new comers, "They have great potentialities."—JOSEPH JACOB.

ASPARAGUS UNDER DIFFICULTIES.

THE growing of this popular and highly desirable vegetable has probably caused more worry and disappointment to gardeners and their employers than almost any other crop one can mention. Bed after bed has been planted in successive years, and

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in many cases the results have been so poor that the attempt to grow it has been abandoned and the usual conclusion come to is, "Oh, asparagus will not grow here." Most gardeners know of such places. No doubt certain places are better adapted for the growing of asparagus than others, but there are few places, if any, where it cannot be grown with considerable success.

The accepted formula is to prepare the ground well as to drainage, manuring, pulverising, etc., then either buy in plants or have them previously at home and plant in April, and under the necessary conditions this plan succeeds generally. But great care has to be used in the work, and very often the results are not anything like in proportion to the care and labour expended.

The writer has been in two places where he was assured asparagus could not be grown, and as he has been successful in having good asparagus in both (the first lot now over twenty years old) he hands on the information in the hope that it may be useful to some readers of THE GARDEN.

The site should, of course, be the best available. Soil as light and well drained as possible, the exposure as nearly south as may be and not too exposed to rough winds. The preparation is much as for planting. Work in plenty of old manure, bones, burnt soil and sand as can be spared. Trench or double dig at least 2ft. in depth, breaking up and adding to both spits. If the bottom spit is not so good as the top, leave it below and add plenty of opening material to it. Leave the surface rough till April, when it should be well broken up with digging forks and the whole made level.

The beds should be about 5ft. wide, leaving an extra foot for an alley between each, these not being formed the first year. Have the drills drawn out as for any seed of the same size, say, 1½ins. in depth and 18ins. apart, and place the seeds separately therein about 4ins. to 6ins. apart.

It is well to put good stout pins either at the ends of each row or at the corners of each bed so that the exact position of rows may be easily found. When the young plants appear keep the ground well stirred and free from weeds with the Dutch hoe to promote a rapid and healthy growth, and when large enough thin out to 12ins. to 18ins. apart. Place twigs round each for support and encourage by every means during the growing season. After the tops die off in autumn give a good mulch all over the bed of some good short manure, stable manure being best for heavy soils.

The second spring, spread a good coating of rough sand over the mulch and fork the whole into the surface soil of the bed. Attend to staking and cultivating as before during the second growing season, and repeat mulch in autumn.

The third year the alleys may be formed and the soil used to raise the level of the beds. A good dressing of salt or sulphate of ammonia may be given in this and subsequent years. If anything like success has been attained, a moderate cutting may be had on this, the third, spring, and thereafter a plentiful supply should be available. Where ground is to spare a bed should be sown each year, when one of the older ones may be lifted and forced for early supplies.—NIL DESPERANDUM.

EARLY FLOWERING BULBS ON THE ROCKERY.

WHETHER or not bulbs are out of place on a rockery is, perhaps, a matter of opinion; but, whatever arguments are raised in objection, it cannot be denied that the majority of the earliest flowering plants on a rockery are either bulbs or corms.

Having had a lax spell as far as blooms are concerned, it is with delight we witness the appearance of these floral "heralds of spring."

On taking a walk through the rock garden in the month of February, one is immediately struck by the beauty of the modest snowdrops, prominent species in flower being Galanthus nivalis (the common snowdrop), the stately G. plicatus (a native of the Caucasus), the large-flowered G. Elwesii, and the broad-leaved though rather small-flowered G. latifolius.

Growing in close proximity to these the lovely blue flowers of Scilla bifolia and, a few days later, S. sibirica provide a pleasant freshening of colour.

Supporting the blue, the diminutive yellow-flowered narcissus minor var. minimus calls for admiration; while among a number of crocuses, C. Balansæ, C. chrysanthus var. albidus and C. Imperati strive for supremacy. Bulbocodium vernum, though perhaps not so neat and attractive, is, nevertheless, a welcome February arrival, and Cyclamen Coum is also present. The snowflake, Leucojum vernum, and its variety, L. v. carpaticum, are now much admired for their unique, drooping, bell-shaped blossoms.

Iris reticulata var. histrioides was the first of the genus to appear, but some of its brethren are on the verge of opening.

Those in the south will probably be favoured with a far greater variety than is contained in the foregoing list, but let me state that we in the north would wait long enough for blossoms in the rockery were it not for the boldness of the bulbs.—W. H., *Glasgow.*

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The Council do not bind themselves to accept the lowest or any Tender.

ARTHUR BARKER,
Clerk to the Council.

Council Offices,
Whitley Bay.
14th March, 1925.

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BOOK REVIEW

REFERENCE has often been made in these pages to the books of Dr. L. H. Bailey and the high standard of excellence which is attained in all the volumes of which he is the author. This latest work, "The Principles of Vegetable Growing," by Dr. L. H. Bailey, published by the Macmillan Company, New York, price 20s., is not a new volume, but is a completely revised edition of the original, which was published in 1901. The excellence and general practical value of the book is testified by the fact that this is the eighteenth edition. It treats comprehensively of the general principles underlying the raising of vegetable crops, the plants themselves, the diseases to which they are subject and their ordinary culture. Chapters are devoted to the forcing of vegetables and their treatment under glass and in hotbeds, with notes on the general management, the land and its treatment with reference to the tools to be employed. A chapter which is both interesting and instructive is that on seeds and seedage, dealing with their testing, growing and sowing. Finally, a chapter on marketing, storing and drying, together with a complete index brings one to the end of the volume. The personal and human interest is kept to the fore throughout its pages, a most necessary fact when one is dealing with an important economic subject. Criticisms might be levelled at certain omissions, but the limits of a single handy book on the subject, such as this volume is, precludes the introduction of a mass of detail in vegetable culture. Readers in this country should bear in mind that the advice given is based on conditions in America, but nevertheless the general principles laid down will be found to apply equally well in this country. It is a sound practical volume and should be thoroughly appreciated by all gardeners, both professional and amateur.

Norfolk and Norwich Horticultural Society.—The annual meeting of this Society was held in the Guildhall, Norwich, on February 14th. The Lord Mayor of the City presiding. The report commented on the Spring Show of 1924 as the finest display of spring flowers ever held in the city. The day of the Summer Show was the wettest for all July and most materially affected the "gate" receipts. The Chrysanthemum Show was well patronised. Reference was made to the loss of Mr. Sydney Morris, Lord Ailwyn and Lord Suffield, all of whom were patrons and exhibitors at the Society's shows. In presenting the statement of accounts Mr. Herbert Perry, one of the auditors, pointed out the set backs to income during 1924, nearly £120 was lost owing to the wet day of the Summer Show and the public had not patronised the Spring Show as one had hoped, consequently the Society was in deficit to an amount of over £60. Sir Bartle Frere was elected president for 1925 upon the proposal of Captain J. H. Mander. On the proposal of Mr. H. Perry the vice-president elected for the year was Mr. J. E. Moxey, Framingham Hall. Captain Sandys Winsch, Parks Superintendent was re-elected Secretary. It was decided to hold a one-day Spring Show in Norwich at the latter part of April, the date of the Summer Show was fixed for June 25th, and the Autumn Show near the end of November.

PUBLICATIONS RECEIVED.

"The Journal of the Kew Guild for 1925,' Vol. IV, No. XXXII. The Journal serves as a link between present and past Kewites and stands for an object which all men who have passed through Kew Gardens should support. To men whose years of training are now but a fragrant memory, the Journal comes as a refreshing and invigorating tonic, containing as it does all the news of their *alma mater*. There are many interesting features in this volume, apart from general news of members and bulletins, such as an interesting article on The Botanic Gardens at Singapore, by the Director, Mr. I. H. Burrill. The Journal is well printed, and to the editor, Mr. Ernest Dunk, we offer our congratulations on the excellence and general usefulness of the volume.

CATALOGUES RECEIVED.

Messrs. Barr and Son, King Street, Covent Garden, W.C.2.—List of Hardy Perennials, Rock Plants, Hardy Climbers and Wall Shrubs.

Messrs. Maurice Prichard and Sons, Riverslea Nurseries, Christchurch, Hants.—Herbaceous and Alpine Plants, Shrubs and Climbers.

Clarence Elliott, Six Hills Nursery, Stevenage.—Seeds of choice Alpine and Herbaceous Plants.

Messrs. Stuart Low and Co., Bush Hill Park, Middlesex.—Carnations for 1925.

J. W. Crow, Simcoe, Ontario, Canada.—A List of Choice Gladioli, including many new varieties, fully described, with notes on culture.

Messrs. Allwood Brothers, Haywards Heath, Sussex.—A Spring Catalogue that all carnation lovers should have. During the past year Messrs. Allwood have scored many new triumphs. One of the hits of the season is undoubtedly the raising of the new Bizarre Seedling Perpetual Border Carnations, which are of hardy constitution and should do excellently in all positions, provided free drainage is supplied. A few novelties in their Allwoodii strain are described, and these appear to be a distinct advance on any of their predecessors. With the acquisition of new varieties in all shades and tones of colour, this race is becoming increasingly popular in the garden.

An omission was made in the report of the R.H.S. Show on March 11th. The Freesia Wistaria shown by Mr. Dalrymple gained a first class certificate.

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HERBACEOUS PHLOXES : :

(Please see article on page 174)

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THE GARDEN

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APRIL 4, 1925

THE "COFFIN" TREE

THE Chinese are well known for the respect which they give their elders, amounting, in fact, to ancestor worship. Among other acts of reverence towards parents and grandparents the rich spend large sums in providing and decorating coffins, and even the poor will mortgage all they have in order to give a fitting burial. Many coffins are extremely elaborate, and there is no doubt that some of the best lacquer work that the Chinese have produced is on coffin lids. It is known that several woods are used in the manufacture of coffins, among them various species of conifers. Farrer and I discovered in Upper Burma an instance of the length to which the wealthy Chinaman will go in order to supply a suitable coffin. While collecting around the Hpimaw pass we constantly met long streams of coolies each bearing on his back a single plank about 7ft. long, 3ins. thick and about 3ft. in width. As we had seen no signs of cutting of timber in our neighbourhood, we made enquiries and found out that there was a great export trade to China of these planks from the area behind and north of that in which we were working. This trade was apparently of great age, and, although we saw no full-grown trees, there is little doubt that, while always solitary, the tree from which the planks came was at one period scattered up and down the frontier and may have spread far into the tangled ranges of N.W. Yunnan. Now, however, the supply must be extremely small and is limited to hidden interior valleys where no white man has ever penetrated. Even the officers in charge of the district have never seen a large specimen.

The woodcutters apparently cut down the tree and carve out the planks with the sole help of an adze, for both axe and saw are unknown, consequently the wastage of material must be enormous. Probably the coolies had carried these planks some fifty miles when we met them, and it is certain that their nearest destination possible was Yunnan-fu, a distance of perhaps 400 miles to the east. Yet with all these difficulties this is apparently a flourishing trade, and at the time we were there the Chinese were willingly paying from £50 to £60 for a single plank.

The tree which these planks came from is a species of juniper. We came across a small tree about 50ft. in height and only about 20ins. in diameter 4ft. from the ground. The only other remains that we saw was the shell of a tree obviously destroyed years before by lightning. We took shelter in the shell from a rainstorm, and sat inside in comfort. Indeed, from the marks of fires on the floor, it must have been a favourite resting place for travellers over the Chimili Pass. The diameter at 4ft. above the ground must have been about 5ft. As the tree is never unwieldy in size of trunk, the height of this giant must have been over 150ft. This makes it at least 50 per cent. larger than Juniperus virginiana.

Farrer describes it thus in his field notes: "I have hopes that this may prove the most important economic introduction for very many years past, for it is a, presumably, *hardy*, superior at all points to J. virginiana, which it ought to drive off the market for 'cedar' oil, 'cedar' cabinets and 'cedar' pencils. It is, besides, a remarkably lovely, graceful, weeping, grey-green 'cypress' occurring rarely in the ravines of woodland, never under 10,000ft. in a region where the summers are wet and sunless, the winters are alpine cold, and the springs late and ungenial and chilly. The wood is close and fine in grain, immortal, and of the most delicious fragrance, either fresh or burned in strips."

Although Farrer may have been too optimistic regarding the value of this tree from an economic standpoint, I can fully bear out these eulogies. I believe the reason why it is so prized by the Chinese is that it takes lacquer better than any other wood. We sent home pounds of seed, and, although only a few germinated, yet it is easily propagated by cuttings, and it is already listed by several nurserymen either under the name "coffin tree" or under number Farrer 1407. I have had several seedlings in my nursery on the east of Scotland without any winter protection for two years, and I have found it perfectly hardy, although rather slow growing. It is, however, most attractive at any size, for even at 3ins. high it takes on its typical weeping appearance. Although it is still too small to have been thoroughly tested, it appears that any rich loam suits it, but I should say that it should be planted in a position distinctly shady while it is young.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

THE CHARM DAHLIAS, by Norman Lambert.

FRAGRANCE IN THE SPRING GARDEN, by H. W. Canning-Wright.

VEGETABLES THAT ARE FLOWERS, by O. A. Merritt Hawkes.

VIOLET CULTURE.

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THREE INTERESTING PLANTS

BY CAMILLO SCHNEIDER.

ASPIDIUM BRAUNII.

AMONG our hardy ferns, Aspidium—or as it is very often called, Polystichum—Braunii (not Brownii), is a well known species widely distributed over the whole northern temperate zone. It is found in shady woods, often on rather stony slopes. It thrives best in a good, deep, light but not spongy loam, well mixed with humus, and it needs shade on account of its rather thin leaves. Its fronds are not evergreen, but die in late autumn or during the winter. Their texture is by no means leathery, as in A. lobatum, and distinctly softer than in A. aculeatum, of which it is often regarded as a variety. Of the true aculeatum the leaves are evergreen, but not leathery. But A. aculeatum, A. lobatum and A. angulare really form one species, showing the greatest variability possible. A. Braunii, however, is not at all variable, and those forms that seem to be intermediate between Braunii and aculeatum and its subspecies angulare and lobatum are now considered as hybrids. The illustration gives a good idea of the pale green, thin, and soft fronds of A. Braunii, which usually reach a length of about 2ft. (sometimes almost 3ft.). The scales of the rachis are of a lighter brownish colour and the number of the pinnæ usually do not exceed fifteen on each side.

By its light green deciduous fronds A. Braunii is easily distinguished from the species most closely related to it, possessing fronds that are bi-pinnate in the lower two-thirds. Other hardy species of the polystichum group with roundish sori, like A. acrostichoides, A. Lonchitis or A. munitum, have simply pinnate fronds, while those like A. laserpitiifolium have the fronds three to four pinnate in the lower two-thirds.

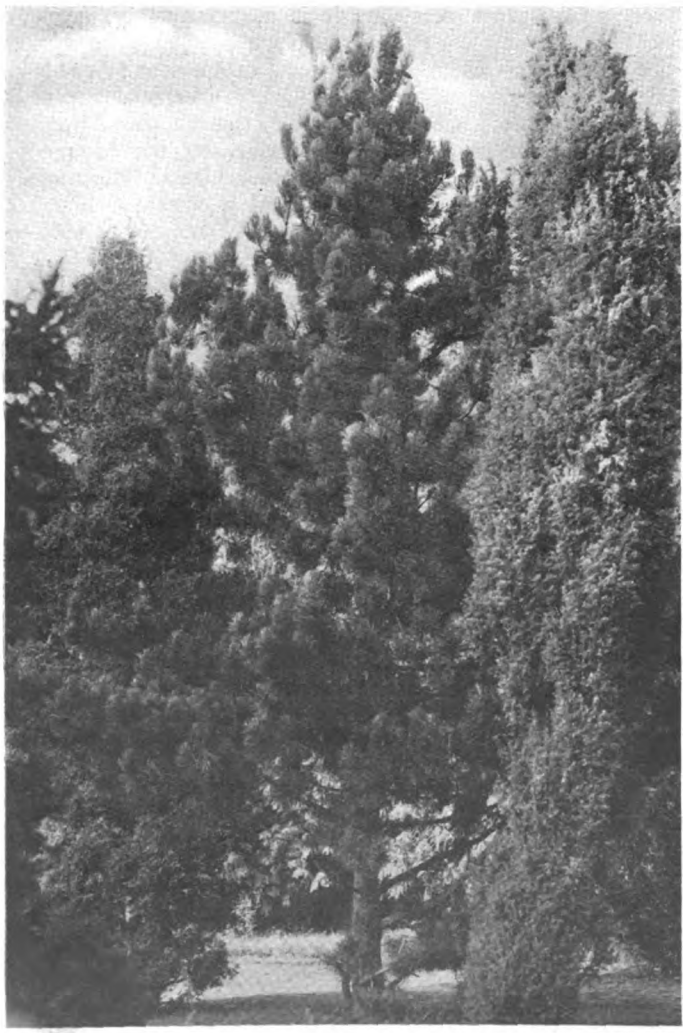
THE PALE GREEN DELICATE FRONDS OF ASPIDIUM BRAUNII.

Of the wild types, A. Braunii can be highly recommended for cultivation in a suitable shady corner of even the smallest garden.

PINUS LEUCODERMIS.

Many years ago while I was travelling in the mountains of Bosnia I had the opportunity to observe this little known form of the widely spread and variable Corsican pine, P. Laricio, or as it is now called, P. nigra. Of this pine the well known variety austriaca or nigricans forms large forests in south-eastern Europe, from the vicinity of Vienna to Galicia in the east and Croatia in the south. It grows well on rather barren limestone mountains and is of greatest value for forestry purposes in such places. It needs a somewhat warmer climate than the common Scots pine, but nevertheless does well even in the colder parts of central Europe.

In 1864 Antoine described a new black pine from Bosnia, Serbia and Albania as P. leucodermis on account of the whitish appearance of the bark of older trunks. This pine was found a few years ago by Heldreich in Greece on Mount Olympus. It was named P. Heldreichii by Christ, who later reduced P. leucodermis to a variety of Laricio. Other names have been given too, to this interesting and critical form, as for instance, P. Prenja Beck and P. pindica Formanek. After all there is still a difference of opinion among botanists as to the systematic position of this pine. The main features in which it is said to differ from P. nigra are its light grey bark which breaks into angular plates and is described as "schlangenhautähnlich gefeldert," its resin ducts not being surrounded by strengthening cells, and by the colour of the umbo of the cone-scales which is greyish-brown on both sides, not only beneath. The ashy-pale, hardly whitish colour of the stem is, the most reliable character of this pine when seen in its native country. I failed to observe it distinctly on cultivated specimens.



THE OLDEST SPECIMEN OF PINUS LEUCODERMIS.

The accompanying photograph shows the oldest but not the largest cultivated plant of P. Heldreichii or leucodermis. It stands in the arboretum of the famous park of Prince Liechtenstein at Eisgrub in Moravia. It was brought to Vienna in 1864 as a very small plant from Bosnia, and it had been cultivated in a large pot for twenty-four years until 1888, when it was planted at Eisgrub. This accounts for the plant being rather small for its age.

SOPHORA JAPONICA PENDULA.

During wintertime the characteristic features of some trees are even more obvious than later when the branches are covered with leaves. Especially is this the case in early

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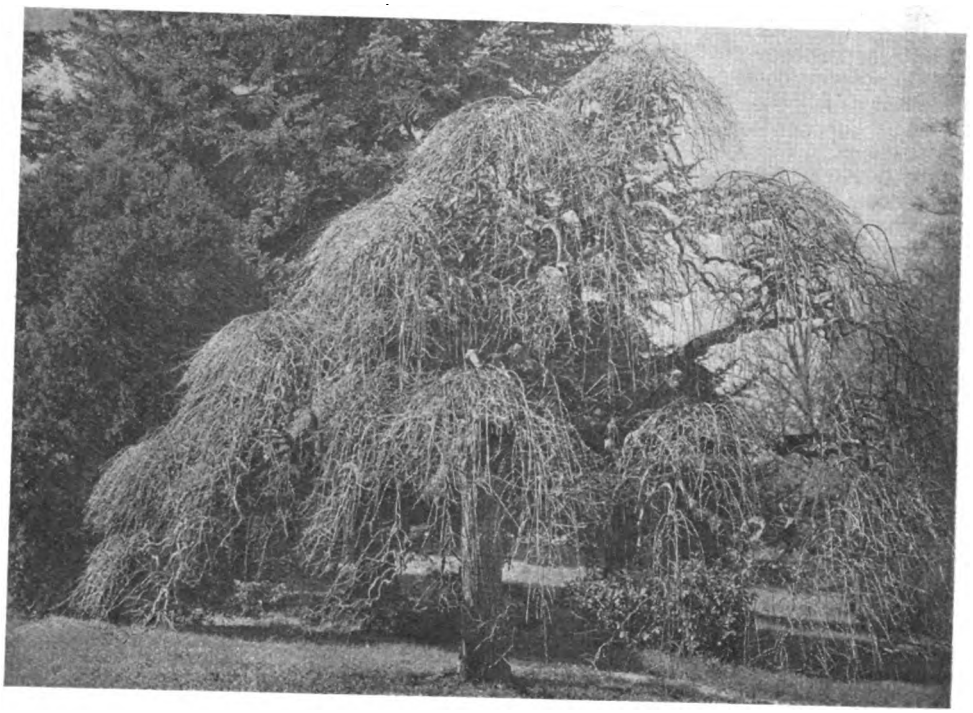
spring in such pendulous trees as Salix babylonica or in a still higher degree, S. alba vitellina pendula, which are very conspicuous when the young branchlets become intensely coloured. They light up among the other dark leafless trees, and form a very striking feature in the landscape.

Next to the weeping willows the pendulous form of our common ash, Fraxinus excelsior pendula is a beautiful tree often met with in our gardens. One of its forms called aurea also has yellow branches like the willow mentioned. The habit of the ash is a good deal stiffer, and not so soft and graceful as of the willow.

The pendulous tree shown in our illustration is in some respects not unlike the weeping ash, but is otherwise very different from it and from the willow, too. It is a form of the Japanese sophora, S. japonica pendula. Even the common form of this good summer-flowering tree has a rather picturesque habit, but more so the weeping variety of which the pendent branchlets are as stiff as those of the ash, but rather short, and of distinct greenish colour. As a single tree on a lawn it is often noticeable, and being of medium size it easily finds a place even in a small garden.

The largest pendulous tree we have is, of course, the weeping red beech, Fagus sylvatica pendula, a large specimen of which seems to imitate a waterfall, sometimes one of our pendulous elms may grow tall, but I have never seen a weeping elm that could match a weeping beech. Is not it rather strange that we do not have a real weeping tilia? There is no weeping form of the black poplar, either. The aspen, Populus tremula, has a form with drooping branches. It is very conspicuous, too, in the early spring on account of the reddish young catkins.

The finest pendulous tree with beautiful flowers is certainly Prunus pendula, or as it is now called, P. subhirtella pendula. There are several other prunus with pendent branches, but none of them is as handsome as this Japanese cherry.



THE EXCELLENT WEEPING VARIETY OF THE JAPANESE SOPHORA, S. JAPONICA PENDULA.

EARLY-FLOWERING CHRYSANTHEMUMS

FOR A BRIGHT DISPLAY OF COLOUR IN THE GARDEN IN AUTUMN, THERE ARE, WITH THE EXCEPTION OF DAHLIAS, NO MORE POPULAR SUBJECTS THAN CHRYSANTHEMUMS.

ALTHOUGH the dahlia is now a serious rival of the early-flowering chrysanthemum as "The Queen of Autumn Flowers," the latter will still retain a large circle of admirers. The reasons for the popularity of the early-flowering chrysanthemum are not far to seek. It is not an exacting flower, as it does not require continual attention like some of our popular garden subjects—for instance, the sweet pea. It can be used in a variety of ways, either for filling gaps in the herbaceous border which arise when summer-flowering plants cease blooming and can be cut down, or for massed effect in beds and borders where it is the sole occupant. Those who possess a greenhouse, whether heated or not, can have a succession of bloom into the dark days of late October or early November when flowers are scarce by growing a number of the later-flowering "earlies" and lifting them into pots, boxes or the greenhouse border. They fill a gap before the decorative varieties commence to bloom, and the old "stools" can be removed to the cold frame after the last sprays are cut, thereby making room for later varieties.

Chrysanthemums do well in an open, sunny position that is sheltered from prevailing winds by hedges, fences, walls, etc., but it is advisable to keep them away from overhanging trees. The soil should be forked over to a depth of 2ft., and well rotted animal manure and bone meal incorporated at the same time. Too many cases of indifferent displays can be attributed to insufficient soil preparation. As the chrysanthemum is easy to grow, it is a common belief that no preparation of the ground is necessary. It is true that they will bloom if left undisturbed for a number of years, but the quality of bloom from such plants cannot be compared with the excellent results obtained from a thorough preparation of the soil and the renewal of stock.

The preparation of the site should be done as soon as weather conditions will allow to enable the soil to settle down before planting out commences. The time for planting out depends to a large extent on the season and the locality. As soon as all fear of destructive frosts is removed, the plants, after they have been well hardened, should be planted out very firmly. For massed effect they can be placed closer than if specimen plants are desired for the production of cut bloom. Stake the plants as soon after planting out as possible and secure them by two or three ties of raffia. If the period following planting out is likely to bring a continued spell of dry, east winds and the situation is exposed, it is a good plan to place round each plant some slight protection in the form of twiggy growths cut from birch, hazel or alder. During a period of drought in early summer it is sometimes necessary on light soils to water the plants. This should be done in the evening, and it is best to give a thorough watering once a week rather than several light sprinklings each day. The appearance of withered leaves on the lower portion of the stem is a sign of dryness at the roots in the growing period.

During the later summer months, as the plants near the period of blooming, light doses of diluted liquid manure or some artificial fertiliser may be given.

Of old favourites the following are reliable in almost any locality or situation, and they are all of easy culture and very floriferous. Most of them are among the first to bloom, commencing to flower in August in Southern gardens and in early September in the North.

Polly is a lovely shade of deep orange, shaded with amber. It is always a mass of bloom during its flowering period, and as the plant rarely attains a greater height than 2½ft., it requires

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little staking. From Polly we have its sports, Crimson Polly (crimson red), Golden Polly (golden yellow) and Abercorn Beauty (deep bronze). Another favourite is Diana, which is of similar habit and blooms about the same time. It makes a fine bushy plant when well grown. The colour is crimson and gold. Golden Diana and Crimson Diana are two fine "sports," the former being particularly good. The "Masse" family is noted for its very floriferous character. All this type are very easy to grow and are most suitable for town or suburban gardens. Improved Masse, a large rosy lilac with a silvery reverse, will give splendid sprays when well treated, and it can also be disbudded if large specimen blooms are required. I am not very fond of its colour. John McAlpine is one of the best of this type. The colour is a pleasing shade of amber and fawn. Others of similar character are George Bowness (crushed strawberry), Horace Martin (yellow) and F. G. Partridge (an improved form of White Masse). Nina Blick, a distinct variety of bright scarlet-red colouring with a flush of golden bronze, is another good old favourite among the very early flowering type.

Following on we have Goacher's Crimson and its "sports" Bronze Goacher and Mrs. J. Fielding (chestnut red), Normandie (blush pink) and Bronze Normandie, a lovely fawn "sport" from it; Chaldon (reddish crimson), very free flowering; Lichfield Pink and Lichfield Purple, both capable of giving very large blooms when well grown; Silver Lining, a very delicately coloured variety, white, with a soft suffusion of pink as though the bloom had been frosted over with this colour; and the rich burgundy crimson coloured Dick Barnes. Most of these varieties are at their best in September, although in the extreme north and in a late season many of the best blooms open in October.

If weather conditions will allow, a succession of outdoor blooms, the following may be used to form the late September or early October crop in a normal season: September White, a large-flowered white that is good either disbudded or in sprays; La Pactole, a big bronzy yellow flower; Pluie d' Argent, a dwarf but very free-flowering white; and Almirante, scarlet-red with gold tips. The latter pays for disbudding, and if it can be lifted the colour is softer when opened under glass and particularly fine in artificial light. All these varieties may be used for lifting. In smoky districts, or if the autumn is not likely to be fine, it is safer to house them, as the whites become very dirty after a few showers.

One of the finest of the new early-flowering varieties is Alexander A. McAlpine, a rich golden orange with shadings of pale bronze. The individual flowers are large, even when it is grown undisbudded, and it is sufficiently free-flowering to make it useful for sprays.

Saracen was in bloom with me in August before any of the others opened. This is one of Mr. Woolman's 1924 novelties. It is a well built bloom of rich amber colouring with a deeper centre, and it lasts in good condition for a considerable time. Shirley Blush is also a very fine double variety from the same source. It opens a creamy blush, but soon changes to pure white. It is excellent when grown in sprays.

Charlotte Harley and Jessie McAlpine are two fine new varieties from Tollcross. Both are very good. The former is a distinct shade of scarlet-crimson and the latter is blush pink in the open and white when bloomed under glass. Jessie McAlpine belongs to a new type. The florets are narrow and pointed. Even when undisbudded huge flowers can be obtained, and the closely packed centre takes nearly a week to open under glass, so that the blooms will last three weeks in water if cut in the half-open stage. Mr. McAlpine allowed me to grow an advance trial of two of his next season's novelties, viz., Mary Houston and Euphie Ritchie. The former is an improved form of Goacher's Crimson, with a brighter and richer sheen of red; the latter is a tangerine form of Jessie McAlpine. Both are worthy additions to the early-flowering section.

I cannot omit the single varieties, as to my mind these are as beautiful, and perhaps even more graceful for room decoration, being particularly pretty in sprays. There are, however, some fine new additions, which not only have the advantage of better petals, but give large individual blooms which are carried on erect stems. There is now a wide range of colours among the newer single varieties, and most of these are very beautiful in artificial light. Of the varieties I have grown during the past season the best are Delice, a rich shade of bright pink; Morning Star, golden amber; Shirley Terra Cotta, a particularly beautiful shade of terra cotta; Stanley Baldwin, wine crimson; Vicar of Shirley, deep bronze; Dolly Thorpe, salmon apricot; Simplicity, white; and Shrapnel, orange terra-cotta. The last three are standard varieties.

NORMAN LAMBERT.

EUROPEAN PRIMULAS

(*Continued from page* 169.)

PRIMULA MINIMA.—Locally distributed in the east and central Alps, among other stations, we have this delightful species, which frequents high alpine pastures on both granite and limestone, but chiefly the latter. It is a jewel for the alpine lawn or for companionship with Gentiana verna and the like, and forms itself into a compact dwarf mat not more than an inch high, with small, glossy, wedge-shaped leaves that are more or less jagged on the distinct square ends. Flowers of a rosy pink colour arise singly on half-inch stems, and are deeply divided; these appear about June. Scree mixture is quite suitable for its welfare, and it should have abundant water during the growing season.

PRIMULA × BERNINÆ HAS DEEP PINK FLOWERS.

P. GLUTINOSA.—Although abounding in its native habitats, this plant is not often met with in cultivation, probably due to conditions it enjoys, but not always allowed it. The moraine or underground watering system seems most suitable, this species being particularly fond of moist places. It occurs on granitic formations in the high Alps, and very much resents lime. The leaves are coated with a sticky substance and are ovate in shape. The flowers, which are of an intense violet colour, are borne in heads on dark stems that grow to 3ins. or 4ins. in height.

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P. ALLIONI is one of the greatest treasures of the race, but requires almost ideal conditions to make it happy, In nature it seems to prefer positions where the sun cannot strike it direct; still, it will stand a good deal of sunshine here, and thrives with it, but I think the surest aspect is a northerly one, where it can be planted under a slightly overhanging rock so that excessive overhead wet cannot reach its foliage. It delights in a deep limestone crevice, where it can firmly wedge itself and where plenty of water can reach its roots in summer. A compost of limestone chippings, leaf-mould and sand will be found quite satisfactory. It is perfectly dwarf and compact in habit, making cushions of small rosettes of dull grey green leaves that feel clammy and sticky to the touch and which do not exceed an inch in height. From the base of the leaves its lovely blossoms appear, sitting tight on the plant. They are large and round and are a clear rosy pink colour. Alpine house conditions are extremely beneficial to its culture and can be well recommended.

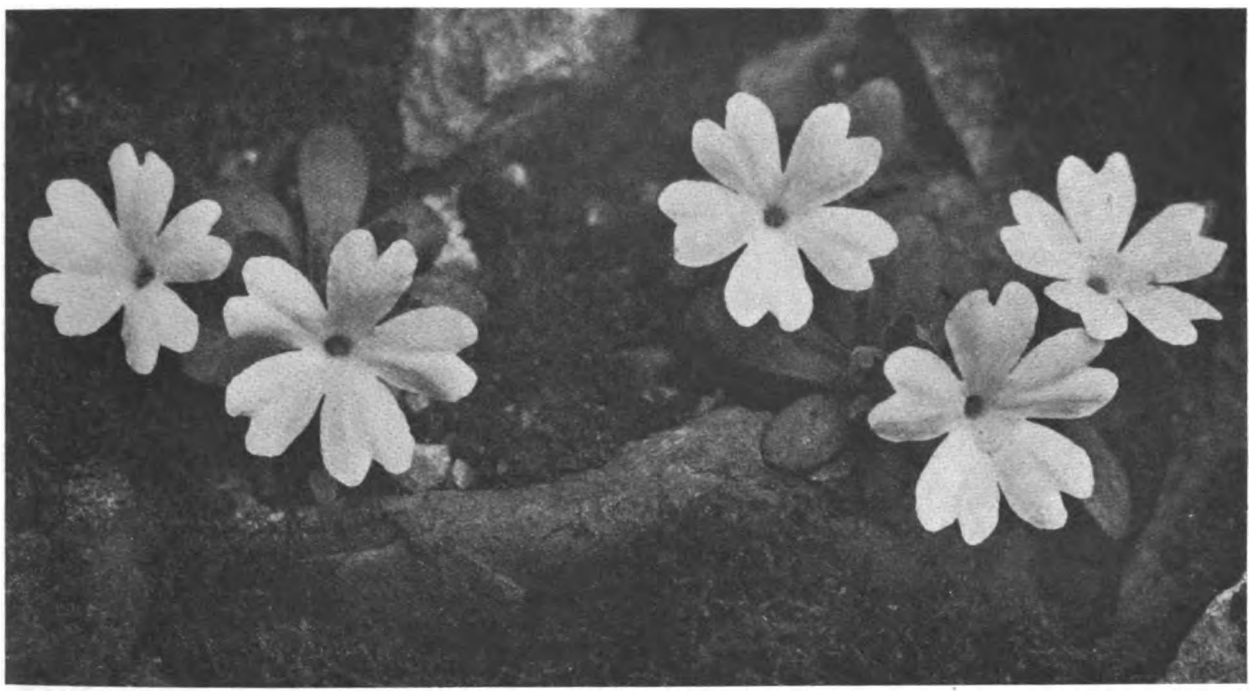
P. SPECTABILIS.—I have often read the praises bestowed upon this plant, but only to regret not having acquainted myself with its reputed beauty, although I have handled a good many and have had well established and thriving specimens. Only on odd occasions have I witnessed its flowers, which seemed only moderately good. It makes sturdy rosettes of stout dark green leaves and bears heads of bright pink flowers on 3in. stems. It is a limestone lover and requires ordinary good loam and a sunny position.

P. TYROLENSIS.—Hailing from the limestones of the Dolomites, we have this (closely allied to P. Allioni) species. Charming as it is, it cannot rival its near cousin. Small rosettes are formed of small, almost round leaves, which are covered with minute hairs and have a much serrated margin. As the plant ages the stems become long and are only furnished with old dried-up leaves, with the exception of the rosette of leaves at the tip. The flowers are borne singly on short stems and are large and bright pink. It will grow well in the moraine especially if it be wedged in a sunny crevice in a good gritty mixture where its roots can get well down. Alpine house conditions are also extremely satisfactory.

P. PEDEMONTANA is quite a charming little species, although not quite so attractive as some already mentioned, it is still worth including in a good collection. It is dwarf in habit, being but 2ins. or 3ins. high. The leaves are leathery with margins of short, dense, snuff-brown hairs, which are a feature of the plant. The flowers are carried in loose heads on slender stems and are of a rose shade. A well drained pocket or sunny ledge in the rock garden should fulfil its requirements.

P. GLAUCESCENS.—Perhaps this species is one of the commonest in rock gardens, which may partly be due to its easy cultivation. It will thrive and prosper in ordinary good loam in a sunny position, and makes tufts of shining glossy green leaves, quite dwarf and compact, from which ascend the dark coloured stems carrying its small heads of deep purple colour in April and May. It is a lime lover, and comes from the Italian Alps.

P. CARNICOLA.—A rare and choice species from the maritime Alps, where it frequents the mossy slopes in the shade of the pines. In cultivation, too, it is uncommon, but it is not difficult to grow in a cool, shady corner in a compost of leaf-mould and turfy loam. Its leaves are a bright green, very slightly hairy, and the flowers appear in heads on 4in. stems. They are large and round, of a delicate pink shade, marked with a distinct powdery white eye.



PRIMULA ALLIONII DELIGHTS IN A LIMESTONE CREVICE.

P. × BERNINÆ.—Conditions suitable to P. hirsuta apply also to this natural hybrid, between hirsuta and viscosa. From the former parent it takes its dense, low, tufted habit, with a taller flower-stalk of the latter. The flowers are deep pink, inclined to be purplish in fact, and are freely produced in May. It is rare in nature, even more so in cultivation.

P. AURICULA BAUHINI.—This form of P. auricula is no doubt very close to P. a. albo-marginata and P. a. albo-cincta; in fact, all three items may be regarded as the same plant from appearance. It is, however, a handsome plant, of easy culture, requiring very ordinary treatment. A cool situation in a good turfy loam should suffice to grow it well. The leaves, stout in texture, are wrapped in white meal, this being particularly heavy on their margins, giving the whole plant a most distinct appearance. Deep golden, white-eyed blossoms form heads on 3in. powdered, erect stems, and are heavily fragrant; these are at their best about May.

P. A. OLD RED DUSTY MILLER.—For more than a century has this fine old garden variety been in cultivation, but now its supply is scarce, except in one or two cases, where old-world plants are specially cared for. Outside the trade, old cottage gardens are the most likely places to find it and these are few and far between. Its large farina-covered leaves are always attractive, probably more so in the early days of spring when the tight winter buds unfold themselves. A mealy flowerstalk carries a head of quaint brick red blossoms 4ins. high in May. Cultural details as for the preceding item will be found satisfactory, and in cases where an alpine house is at hand specimens of these mealy auriculas should certainly be included where their beauty may be seen to the best advantage.

F. BARKER.

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ABOUT GARDEN PAVING

A DESCRIPTIVE ARTICLE ON THE USE AND MISUSE OF GARDEN PAVING. THE MATERIALS USED IN GARDEN PAVING AND THE DESIGN TO BE FOLLOWED ARE USUALLY MATTERS OF CONSIDERABLE DIFFICULTY FOR THE ORDINARY GARDENER.

THERE seems to be a constant difference of opinion among garden owners as to whether garden paths should be paved, and one does meet, on the one hand, people who will have nothing but paved walks, and, on the other, those who have no use whatever for paving of any kind in the garden. Fashions come and go, and the prevailing fancy for ill-laid "crazy" paving is but too likely, in the end, to drive paving of every shape and form from the gardens of those who must always do what is "being done." That there *are* fashions in gardening none will deny, but, fortunately, the really keen gardener is above fashion's whims; he builds his garden to suit his personality and in the end, and if the personality is great enough, he may even set a fashion himself.

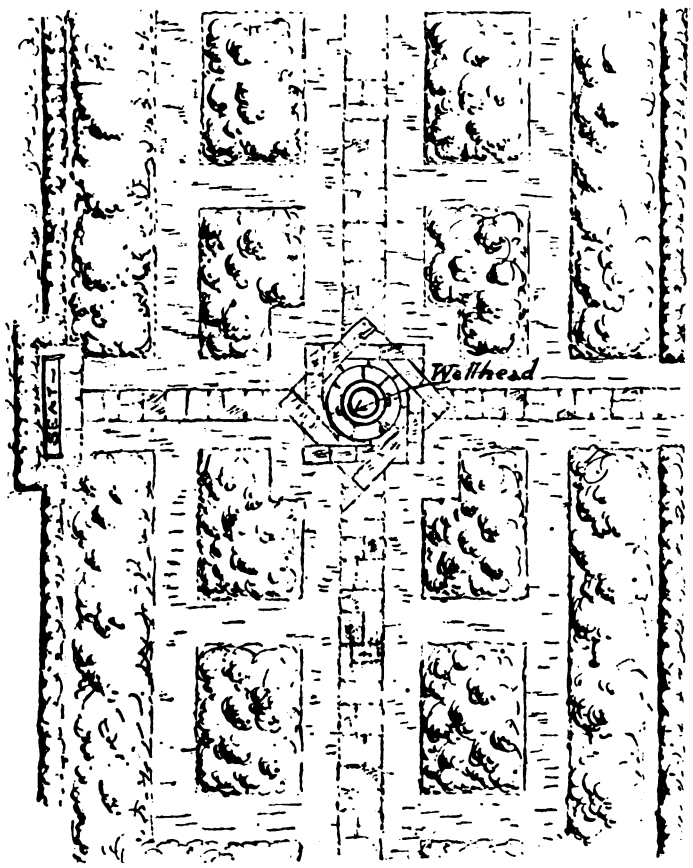

FIGURE 1.

The "personality" of a garden is a great thing, and there is something about even the faulty construction of a garden designed entirely by its plant-loving owner which makes a very real appeal to the hearts of other genuine garden lovers—an appeal which many professionally designed gardens, though infinitely better proportioned, fail to make. It is not easy for us garden architects to admit as much, but the fact has to be faced. It is only when the gardener himself has the gift of design, or when he has that appreciation of his own deficiencies which drives him to seek the collaboration of a designer that we get those outstanding gardens which give delight both to artist and plantsman.

We are in danger, however, of straying from our immediate topic. Let us look at this question of paving simply from the points of view of beauty and utility, leaving fashionable prejudice quite aside, and try to make up our minds where paving is desirable and where permissible, and under what circumstances it is entirely out of place.

From the point of view of utility, properly laid paving provides a dry way and enables one to admire a garden or to traverse it for any purpose dryshod, while the raindrops still hang on the foliage. "The dew that on the violet lies" can only be observed in comfort if we have a means of approach which will keep us dry under foot. So far, however, paving has no advantage over good gravel, and there are positions where, from the point of view of strict utility, it is decidedly inferior. Stone paving, in particular, withstands heavy traffic—particularly wheeled traffic—much worse than gravel, and there are places where, even from the standpoint of appearance, a firm-setting, nice-coloured gravel has superior attractions, warmth of colour being one of them. Brick paving is (or should be) warm in colour, but it cannot altogether supersede gravel, because it is only attractive when used in comparatively narrow strips or ribbons. A considerable stretch of brick paving is, however ingenious its arrangement, a paved yard and nothing more.

Mown greensward forms the best of all possible settings for dwarf roses and the generality of flowering shrubs and herbaceous plants, and no one with any sense of the fitness of things would let anything that might be called paving approach the wild or woodland garden. From the viewpoint of utility, however, turf will not withstand very hard wear, and it should not, as a rule, be used for paths in town gardens—at any rate not for through-paths which carry an appreciable amount of traffic. Wheeling materials over a turf walk in winter means the use of planks, or irreparable damage to the path. These drawbacks are, in addition to the fact that it holds moisture after rain and is, at some sesaons, scarcely ever free from dew. Turf may, however, be used as a setting and yet leave a dry, wear-resisting pathway, by running a strip of paving down the centre of a broad walk between the flowers (Fig. 1).

Herbaceous plants and dwarf shrubs with flowers in tones and tints of purple in any stage of dilution, as well as those with crimson, soft yellow, or cool pink flowers, or with silvery or silver-grey foliage suit well with the brownish or purplish grey of self-faced York paving, and the paving has, in this case, the additional advantage of allowing dwarf plants of prostrate or spreading growth to tumble gracefully upon it and display their charms without fear of their getting mud-splashed or weed-infested.

Where there is no space for a paved garden for plants such as these, or where the cost would be prohibitive, it is permissible to set out the usual grass walk and to edge for a couple of feet either side with the paving. Or the character of the garden may be modified somewhat, and cobble-stones (petrified kidneys), old bricks, crazy paving and what-not may be pressed into service to produce a Dutch-garden

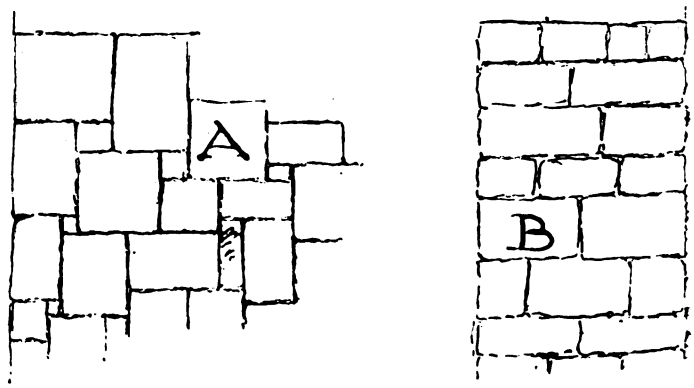

FIGURE 2.

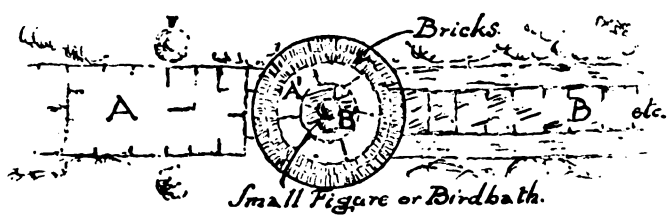

FIGURE 3

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effect, but care should be taken to make adequate pathways for actual progress; cobble-stones are *not* comfortable to walk upon.

Squared paving is, as a rule, desirable for garden paths and terraces, but crazy paving, if carefully and closely jointed and well bedded, forms unexceptionable footways, which are only less effective than those composed of squared materials. Where extensive areas are to be covered it may often be used very effectively in conjunction with squared paving (or squared paving and bricks), and the effect is sometimes better than if all squared stone has been used.

In more or less formal places—under pergolas, in the open spaces of the paved garden, on important terraces, and so on—a certain amount of design in the paving is admissible or even desirable, but the fascination of those complexities must not tempt us to make our paving too elaborate. Unless on quite a small scale in a little Dutch winter-and-early-spring garden, very elaborate pavements bring back unpleasant

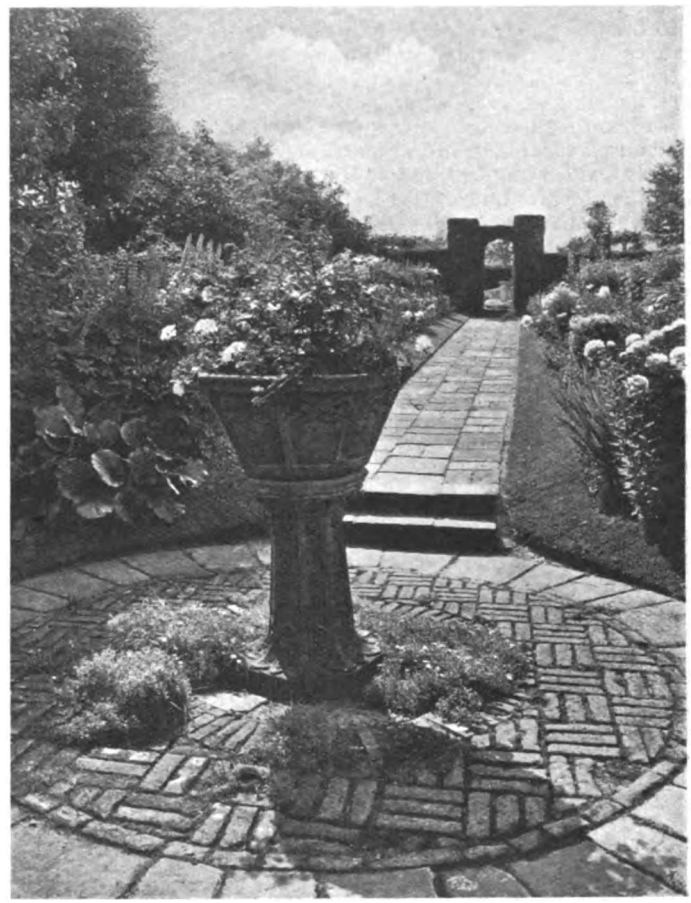
A PLEASANT COMBINATION OF BRICK AND TILE.

recollections of parterres in coloured earths and other barbarous and outdated styles.

Almost all stones other than York self-faced, which is laminated and splits pretty much like roofing slate, must be sawn to get a reasonably smooth tread. Such sawn pavings are to be obtained in various parts of Britain in brown, various greys, purplish blue and red. Self-faced York is certainly the most beautiful stone for garden paving, as it displays a beauty of texture quite impossible with any sawn stone. It is usually sold in 1½in. and 2in. thicknesses (approximate, of course), and care should be taken to order the whole of the stone required for a particular job at once, otherwise the two or more lots may vary greatly in colour and the total effect be anything but charming. For this reason it is sometimes wise, where a paved path is being laid down to join a stretch of paving already in existence to insert some little feature in the paving at or about the junction, introducing other materials to mark the dissimilarity Fig. 3).

Concrete is sometimes used for paving instead of stone. It is not a material to enthuse over, and should not be employed if stone comes within the range of practical politics, yet, if properly laid, it is hard wearing and, for positions where stone seems called for, better than gravel. People who must have impervious paths and cannot (or will not) afford stone, should certainly use it in preference to asphalt, which, in a garden, is an abomination. Bricks new or old of good red colouring and which will withstand frost when lying in damp earth form a good paving for narrow paths in old-fashioned gardens, and, in combination with other kinds of paving are useful in larger spaces. Roofing tiles on edge—otherwise useless old tiles from a crooked and dismantled roof will do—are often used as effective incidents in paving, and cobble-stones come in for the same purpose.

When squared stone is ordered from the quarry or agent, exact dimensions of the work should be given, with dimensioned drawings showing any patterning and instructions as to whether the stone is wanted in courses (" coursed random "), or otherwise (" random "). Fig. 2 shows the difference between the two



DOUBLE COURSED SELF FACED PAVING WITH GRASS EDGES.

styles. Crazy paving must, of course, be fitted and worked-up on the site.

Paving should always be laid on a layer of really fine material—sand or ashes, or lime—or cement mortar. Small paving, tiles, bricks, etc., should be set in mortar and the smaller pieces of crazy paving should certainly be bedded in mortar. It is in any case useless to lay paving direct on to ground which is liable to be flooded or to move when soddened. In bad cases a layer of concrete may be necessary as a foundation.

The question of paving is very much bound up with that of garden stairways and, where water is to be treated formally, with pond-edgings, and these three features should be considered together.

In certain positions the question of arrangement of paving should be given careful consideration. Care should be taken to avoid discrepancy of line when the general design is being laid out. In the case of laying out of paths such discrepancy of line is often noticeable, and it is afterwards realised that a different arrangement would have been preferable in the position.

R. V. G. WOOLLEY.

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THE VALUE OF HUMUS

BY E. HANNAFORD RICHARDS,
Rothamsted Experimental Station.

ALTHOUGH the real nature of that important constituent of fertile soil, commonly known as "humus," is still the subject of discussion by agricultural chemists, there is no difference of opinion as to the value of organic matter in maintaining a high level of crop production. Whatever the scientific experts may say, the practical gardener knows this fact so well that it is quite unnecessary to go into the reasons here. In the present article it is proposed to deal with the different ways by which organic matter can be added to the soil, to discuss the advantages and disadvantages of each method and to show how the best value can be obtained in different circumstances.

First of all comes farmyard or stable manure, the oldest of all fertilisers, so aptly called by Kipling "the brown mother of all things." When this is of good quality it is the best of all ways of adding organic matter to the soil, since, besides providing the raw material of humus in the most suitable form, dung is also a "complete" manure. Its proportion of phosphate is low compared with nitrogen and potash, but this lack of balance is, of course, easily remedied by dressings of phosphatic manure. Unfortunately, much of the stable manure from towns is now very poor stuff, containing much rubbish of no fertilising value and, occasionally, oil waste and other things actually injurious to plant life. Further, dung often introduces weeds into a garden which were not previously found there. The greatest trouble about farmyard manure is that there is not nearly enough of it, and, consequently, it is expensive. The substitution of mechanical for horse traction has reduced the amount produced in towns, but even in purely agricultural areas it is not always easy for the gardener to get what he requires.

The farmer frequently gets over a shortage of organic matter in his soil by sowing a quick-growing crop, such as mustard, and ploughing this in when it has made a vigorous growth. The leaves and stems rot in the soil and so increase the supply of humus. There are several difficulties which limit this practice on farms, and these apply with even greater force to the smaller area of the garden, viz., the time required to grow the green crop and its dependence on suitable weather conditions to produce a satisfactory bulk. In spite of these objections, green manuring is used to some extent in gardens and most of the leading seedsmen supply special seed mixtures for this purpose. As will be explained later, the crop takes some time to decay after digging in, especially on the heavier soils, so that this method should not be used in cases where a short well rotted manure is known to give the best results with the following crop.

A third means of supplying organic matter is to buy in shoddy or one of the many prepared organic manures now on the market. Not all of these are of equal value, but there are several reliable brands which may be used with confidence. Manures of this class have the advantage of simple and easy application, but, as they must be used liberally if they are to have any physical effect on the soil, the cost, including carriage, becomes rather heavy.

Finally, we come to the preparation of synthetic or manufactured farmyard manure, by arranging a controlled fermentation or rotting of vegetable matter so as to produce an organic fertiliser having the virtues of farmyard manure without the few disadvantages referred to above. This method is at once the oldest and the newest of those employed by the experienced gardener; oldest, because from the earliest times a compost heap in which grass cuttings, leaves, etc., were allowed to rot down has been a feature of every well managed garden; newest, because it is only within the last two years that the complex biochemical changes associated with the decay of cellulosic matter have been explored to a stage which allows them to be controlled so as to yield a product superior in some respects to good farmyard manure. Every garden produces cellulosic material, the potential source of soil humus. Much of this is usually burnt, but it is obviously wasteful to destroy what nature provides gratuitously, and to buy in dung or organic manures until the waste vegetable matter on the spot has been used to the best advantage.

As a result of researches carried out at Rothamsted Experimental Station it is now known that the micro-organisms concerned in the breakdown of the carbohydrates, which constitute at least 80 per cent. of the dry weight of most plant tissues, can be stimulated by certain chemical compounds. Further, there is a definite quantitative relationship between the weight of chemicals required and the fermentation of a given weight of cellulosic matter. The term "cellulosic" includes all carbohydrates normally found in plant tissue, *i.e.*, sugars, pentosans, starches, besides the different varieties of cellulose. These are given in the order in which they are most easily fermented: sugars in a few hours; ligno-cellulose, or woody fibre, in its most resistant form, will require several months. Nitrogen is by far the most important element concerned in cellulosic fermentation. Some kinds of garden refuse contain sufficient nitrogen but are lacking in some other essential constituents, *e.g.*, phosphate. By suitably adjusting the proportions of different types of waste vegetable matter, it is theoretically possible to balance the foods required by the organisms. In practice a compromise must be made suitable to the average kinds of garden refuse.

There is one very important fact to be remembered. If the special requirements of the organisms concerned are not met by the supply of sufficient chemical stimulants in suitable form and, consequently, unfermented carbohydrate is dug into the soil, the microbes will draw on the reserves of plant food in the soil to complete the work not performed in the manure heap. As an example, if raw straw is dug into a fertile soil, the first crops taken will be less than those from untreated soil. Carefully controlled experiments on farm lands have shown that even a liberal application of complete artificial manures did not redress the balance. Of course, this effect is most pronounced with soils in poor condition, but it is always preferable to rot cellulosic material in the heap, until, at any rate, the sugars, pentosans and starches have disappeared, rather than to dig in the rubbish straight away, if a rapid turn-over of soil capital is desired.

Most of the knowledge briefly summarised above has been obtained in the course of study of the fermentation of animal manure, leading to the production of synthetic, or manufactured, farmyard manure from straw and other cellulosic materials. For more than eleven years, Lord Elveden has provided funds to maintain a research chemist at Rothamsted. Many of the early field trials, including the first successful production of synthetic manure from straw at a price comparable with farmyard manure, were carried out on Lord Elveden's estate at Pyrford, Surrey. These farm trials, and the whole of the elaborate series of experiments with garden refuse, were made by Mr. W. Auton, who has charge of the Pyrford Court gardens, and the successful outcome is very largely due to his skill and special knowledge. In 1921, when the laboratory work and small scale experiments had shown encouraging results, Lord Elveden formed a private company, originally known as Agricultural Developments Company (Pyrford), Limited, to carry the work to the commercial scale. This involved a heavy expenditure on staff and plant, which is outside the scope of a research institution. The capital of the company is provided by Lord Elveden, and any profit after payment of expenses will be devoted to further research on the lines which have proved so successful in the past.

The company (now known as Adco, Limited), owns the British and foreign patents for processes for preparing synthetic farmyard manure and for the special chemical reagents manufactured and sold by the company under its trade mark "Adco." These have been very widely used both at home and overseas for the treatment of a great variety of waste vegetable matter. Besides garden refuse of all kinds, straw, rushes, bracken and spoilt hay have been turned into manure during 1924. Overseas, the "Adco" process appears to have a future in tropical agriculture. "Adco" manure is now under trial in India,

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Australia, Brazil, the Gold Coast and elsewhere, for the cultivation of tea, coffee, cocoa, sugar and bananas, to mention some of the more familiar crops. In Rhodesia both maize stalks and veldt grass have been made into very good manure which is now being tested against farmyard manure on potatoes.

For obvious reasons it is difficult to give definite figures for increases of crops grown in the ordinary garden. A plot trial made by Dr. F. Haviland, St. Leonards, with "Adco" manure made from bracken, showed increased yields from 5 to 20 per cent. greater than from corresponding plots dressed with equal quantities of dung. Messrs. Sutton and Sons made a careful test on their trial grounds at Reading last year with "Adco" manure made from straw, and have kindly given permission for their report to be published. Copies are available to any readers who are interested. In conclusion, it may be noted that while synthetic farmyard manure is not likely to be of interest to those gardeners who are fortunate enough to obtain ample supplies of stable manure at a cost of less than 10s. a load, nor to those who have to buy raw material in the form of straw at its present high price, the "Adco" method of dealing with garden rubbish that would otherwise be burnt, fills a place in the economy of the soil which is likely to prove of increasing value in the future.

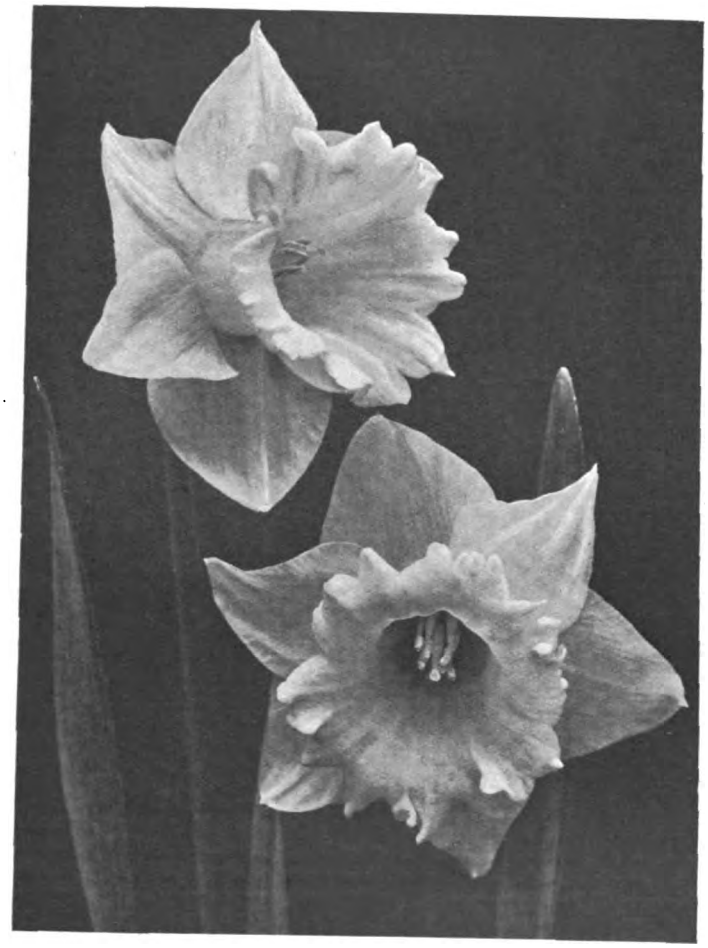
SPRING AT VINCENT SQUARE

ON the occasion of the fortnightly meeting of the Royal Horticultural Society at Vincent Square, Westminster, held on the 24th and 25th ult., the fact that Miss Spring had really and truly made her bow to 1925 was clearly manifest by the bright and gay appearance which met the eye on entering the hall. Alpines were present in large variety, while bulbs in the shape of narcissi and tulips, largely predominated. Carnations were also well to the fore, while orchids and greenhouse plants added their quota to the general effect of colour and fragrance.

One of the main features in the Show was the magnificent carpet of double tulips exhibited by Messrs. Sutton and Sons, Reading. The kaleidoscopic effect obtained by judicious planting of varieties with contrasting colours was truly wonderful. For bedding purposes these double tulips are excellent with their large flowers in all shades, borne on short, erect and rigid stems which are remarkably even in height. There can be no doubt, however, that the mere possession of double flowers detracts in some measure from their more extensive popularity. Such varieties as Mr. Van Tubergen, Hellenium (yellow), Lucretia, Peach Blossom, Apple Blossom, Orange Nassau, Lord Beaconsfield (pink) were all eminently displayed.

The stand of Mr. Elisha J. Hicks attracted considerable attention, which it well merited. The roses which were exhibited were truly wonderful productions considering the time of year. They all showed the result of clean and careful cultivation throughout the winter months, the foliage being in good condition, while the number of flowers and their colours were remarkable. Climbing Lady Hillingdon was the most prominent, and was closely followed by other varieties, such as Betty Uprichard, Mrs. Elisha Hicks (which is very fragrant), Mme. Butterfly, America and Rosa Moyesii, which was of a good colour for this time. Mr. Hicks is to be congratulated on the results he has attained under such trying climatic conditions.

Messrs. Bath, Limited, proved by their exhibit at the hall this week that they are capable of growing excellent Darwin and May-flowering tulips in bowls of fibre as well as the narcissi and hyacinths which were so much admired at the last two shows. The decorative value of bowls of tulips could be well appreciated from these well grown tall specimens of most entrancing colours. The carmines, scarlet crimsons and some of the yellows are particularly effective for indoor decoration. The well formed brilliant rose flowers of Pride of Haarlem, the shaded mauve of Feu Brilliant, Princess Elizabeth (light carmine) and Petrus Hondius (a rich rose) were some of the best. Long in stem and sturdy in growth was Bartigon, a fiery red tulip. There are no pure whites among the Darwins, but the nearest is White Queen, which Messrs. Bath were exhibiting. This variety is slightly shaded with mauve and is hardly worth growing when such beautiful varieties as Inglescombe Yellow (perfect in clearness and form), Suzon (a delicate buff rose almost white at the base) and Eclipse (a crimson) are obtainable. Zulu and Philip de Commines (both handsome purplish black tulips) and Bronze Queen formed a contrast to the other shades. All of these could be seen on Messrs. Bath's stand, and some of them should be added to next season's collection. The average grower when purchasing bulbs should consider the constitution as well as such points as colour, form and texture of the particular variety he contemplates buying. Certain varieties may appear perfect when exhibited, but in some cases they will be found to be not good doers. They produce poor weak growths, do not increase rapidly, and are not successful in all soils. One firm who realises the importance of constitution when raising new varieties is Messrs. J. R. Pearson and Sons, Limited. They were exhibiting again this week some of their own narcissi and a number of varieties introduced by other specialists. Among them were members of the white trumpet narcissi, giant Leedsii, jonquilla and poeticus sections. One of the outstanding varieties was Firetail, a large-flowered Barrii narcissus with creamy white broad segments and a flat reddish orange cup. Other good varieties were Capella (a pale giant Leedsii), Van Waveren's Giant (a large trumpet narcissus), Hon. Mrs. J. L. Francklin (a vigorous trumpet variety with upright stem), The Don (a pale bicolor daffodil), Ben Alder (a good yellow), Bernardino (a bicolor incomparabilis) and Princess Miriam.



NARCISSUS GODREVY, WHICH GAINED AN AWARD OF MERIT.

An excellent display of seedling narcissi under numbers and certain named varieties were again shown by Messrs. Barr and Sons. One looks forward to the time when these seedlings will be named and obtainable in commerce. Fantin Latour (a trumpet daffodil of great size with a lemon perianth and a deeper yellow trumpet), Sanda (a large jonquil hybrid of rich yellow), Watteau (of distinct colouring having its long narrow trumpet tinged with pink) were three of the named seedlings. Almost a self-colour daffodil was Princess Juliana, and White Nile, Crœsus and Mrs. Mackinnon are representative of the varieties exhibited by Messrs. Barr and Sons.

Messrs. Dobbie and Co., Limited, had a striking display consisting entirely of poetaz narcissi. All varieties of these were massed down one side of the hall. Poetaz narcissi are hybrids between the best forms of polyanthus narcissi and poeticus ornatus. They are all vigorous in growth and some carry as many as six flowers on each stem. These poetaz narcissi are equally suitable for growing in bowls or massing in borders. They are very sweetly scented and last for some days as cut flowers. Joconde was one of the best varieties, although not so large as some. It is a clear yellow with a golden yellow cup. Hæmon was of similar colour but a little deeper. The scarlet-edged cup added to

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the attraction of the variety Admiration. A large white with a yellow cup was Alsace, and among the other varieties exhibited were Sovereign, Laurens Koster (a small flower almost white), Triumph, Irene (a yellow) and Grace Forbes (a pure white with a bright orange cup).

Another first-class exhibit of narcissi was that of Mr. J. Lionel Richardson of Waterford, Ireland, who had a good collection of well grown varieties. Although not one of the newest narcissi on this stand, the aptly named variety Sunrise was one of the most effective. The semi-transparent perianth is tinged with orange at the base, and the cup is of a rich orange red. Silvo, a pale giant trumpet, was also noticeable. The good qualities of Fantin Latour and Firetail were again impressed upon the public by this grower. Mr. Richardson was showing Golden Pedestal, a variety of his own raising and one of the finest incomparabilis on the market, being perfect in form and colour. The flowers are of exceptional size and of a beautiful golden yellow. Unfortunately, this variety is very rare and expensive. Glorious (a splendid poetaz narcissus), Empire and Queen of the North are three of the many good varieties exhibited by Mr. J. L. Richardson.

The alpines were, on the whole, more varied than at the last show. Mr. Mark Fenwick exhibited an interesting and diverse collection which included a very beautiful seedling of Narcissus triandrus, pure white with slightly reflexed petals and wide, crinkled cup; Tulip Kolpakovskiana; a delicate lilac-blue squill from Messina (Scilla Messinensis); the rare Primula Marven (Primula marginata × venusta), violet-purple with a white eye; the little pale yellow rhododendron R. flavidum; and a good bush of Daphne retusa, a stocky evergreen daphne from China with heads of large lilac-pink flowers which promises to be happier in cultivation than many of its family. It appeared in several other exhibits, and should prove a valuable shrub for the rock garden. All the plants were remarkably well grown. Broad pans of Saxifraga Faldonside were nearly hidden in almost morbid floriferousness by the great yellow blossoms, and even the uncertain Saxifraga Boydii (S. Burseriana × aretioides) was flowering heartily.

Mr. Clarence Elliott showed several rare and interesting plants on a series of terraces built up of grey limestone which showed off admirably the magenta fur of Saxifraga Griesbachii Wisley variety (more vigorous than the type and even more fantastic in the pose of its tilted rosettes) and the cherry red of Farrer's Saxifraga Myra. Primula Allionii, that rarity of the Maritime Alps, looked happy enough hiding its neat rosette with large pink flowers in spite of its reputation for difficulty. Another very attractive rarity was the diminutive Scots pine, Pinus beuvronensis, which is one of the few dwarf conifers that reproduces the forest form in miniature. With Cupressus obtusa tetragona minima a 3in. mound of mossy green shown by the raiser, Mr. W. H. Rogers of Southampton, and Daphne petræa it makes an admirable combination of minute shrubs for the miniature rock garden. Another unusual plant shown by Mr. Clarence Elliott was Dentaria polyphylla, a woodland crucifer with creamy yellow flowers and ferny leaves which has far more grace and distinction than most of its race.

Messrs. Tucker of Oxford showed several plants of Daphne retusa, a pan of Androsace pyrenaica (like lumps of grey-green rock studded with minute jasmine flowers), the large-flowered form of Ranunculus amplexicaulis (a statuesque beauty) and—very different from these high alpines—the old-fashioned double primrose, sanguinea plena, which is not in the least blood red but of a cheerful claret colour that goes very well with the old double white. With several other exhibitors they showed the graceful little Hyacinthus amethystinus, which also belies its name, for it is a clear Cambridge blue and rather like Muscari Heavenly Blue, with the bells open instead of closed and a lighter, airier design. It was probably named from dried specimens, which are apt to become purple with age and might be called "amethystine."

Among the other exhibitors were the following:

ANEMONES.—Messrs. Reamsbottom and Co. and R. Gill.

AZALEAS.—Messrs. R. G. Cuthbert.

CARNATIONS.—Messrs. Allwood Brothers, C. Engelmann, and Stuart Low and Co.

CINERARIAS.—Messrs. Sutton and Sons.

FORCED SHRUBS.—Messrs L. R. Russell.

FRUIT.—Messrs. Bunyard, and Westmacott and Co., Limited.

ORCHIDS.—Messrs. Sanders and Stuart Low and Co.

POLYANTHUS. — Messrs. Blackmore and Langdon, R. Gill, K. and E. Hopkins, G. A. Miller, Arthur Pratt and Sheppards.

RHODODENDRONS.—Messrs. R. Gill and Son and G. Reuthe.

ROSES.—Mr. George Prince.

SHRUBS AND ALPINES.—Messrs. Bakers, Carter Page, William Cutbush, M. Prichard, G. Reuthe, Skelton and Kirby, G. A. Miller, Waterers, and G. Whitelegg.

VIOLETS.—Mr. Baldwin Pinney.

NEW AND RARE PLANTS.

PRIMULA BUNTY.—This variety merited the considerable attention it evoked, since it may be regarded as a distinct break in colour in the primula genus. The flowers were from ⅞in. to 1in. across and varied in colour from dark blue to purple. In a few flowers the purple tinging was round the eye. The stems were short so that the flowers arising from close and compact rosettes of leaves sat fairly tight on the plant. Award of merit. Shown by Messrs. Bakers, Wolverhampton.

RHODODENDRON BERNARD GILL AND R. FIREBALL.—These two rhododendron hybrids appeared to be remarkably close both in colour and habit. The flowers in each case were borne in light and compact trusses close to the foliage. The leaves varied from 3–4ins. in length. Award of merit. Shown by Messrs. Gill and Son, Falmouth.

TULIP HELLENIUM.—A double-flowered variety with large flowers of a bright yellow in colour. When fully expanded the flowers measured 5–6ins. across. These were borne perfectly on stems which varied slightly in height from 14–16ins. For bedding purposes it should prove a good variety. Award of merit. Shown by Messrs. Sutton and Sons, Reading.

NARCISSUS WHITEHILL.—This is a trumpet variety with large flowers almost pale white in colour. The trumpet was prettily crisped at the edges. Award of merit by Narcissus Committee. Shown by Mr. J. L. Richardson, Prospect Gardens, Waterford.

N. ST. WINNOW.—This variety was a large trumpet daffodil with the flowers well carried on long stems. The perianth was pale white in colour and almost transparent. The trumpet was crisped at the edges.

N. MILKMAID.—A pretty Leedsii variety. The short white tinged with yellow trumpet was characteristically frilled. The segments were whitish yellow in colour.

N. DOMINICK.—A large yellow variety with wide open trumpet with frilled edges.

N. GODREVY.—A magnificent large yellow trumpet variety. The segments were of good substance and deep yellow in colour. The trumpet was crisped and frilled, and measured about 1¼ins. across.

N. DAMSON.—A variety with white to yellowish perianth which contrasted well with the scarlet to orange cup, which was crisped and frilled.

N. BODELLY.—This variety carried large flowers with white segments and yellow trumpets. The trumpets were rather rigid and stood boldly out from the surrounding perianth. The above six varieties were all exhibited by Mr. P. D. Williams, Lanarth, St. Keverne, and each gained an award of merit by the Narcissus Committee.

ORCHIDS.

ODONTIODA VISCOUNTESS FOLKESTONE (Odontioda Coronation × Odontoglossum l' Empereur).—Although this young seedling was flowering for the first time, and with only a single flower, it exhibited such promising characters that the Orchid Committee recommended a preliminary commendation. The flower is equal in size to some of the best odontoglossums, the segments are particularly well formed, of deep violet rose colour, the central areas with chocolate-coloured blotches, the elongated labellum rendered attractive by reason of the bright yellow spiny crest. One of the finest of the many hybrids that have been raised from Odontioda Coronation. Shown by Mr. R. Gerrish, Milford Manor, Salisbury.

In order to prevent confusion with another hybrid of similar name, the plant given an award of merit on February 24th as Lælio-Cattleya Sheila has had its name amended to Lælio-Cattleya Sheila Beddington.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

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THE AMATEUR FLOWER SHOW

A FEW HINTS FOR INTENDING EXHIBITORS AT THE AMATEUR SHOW TO BE HELD BY THE ROYAL HORTICULTURAL SOCIETY ON JUNE 30 AND JULY 1.

FELLOWS of the Royal Horticultural Society and horticulturists generally will welcome the decision of the Council to hold a special show for amateurs at the Horticultural Hall, Vincent Square, at the end of June. The success of the venture will depend upon the support it receives.

A few notes on the various classes may be of interest to prospective exhibitors.

The rose rightly takes its place at the head of the schedule. The great army of rose enthusiasts should in itself be sufficient to guarantee the success of the rose classes, especially as the show comes right in the heart of the rose season. Where suitable varieties are grown and grown well, there is not a vast difference between the garden rose and the one good enough for show. If the idea should present itself that it may not be possible to get flowers large enough, it might be well to point out that it is quite possible to overdo size. Beyond a certain point, according to the variety, size may tend to coarseness, and would thus be less desirable than the bloom which is a little on the small side.

The first six classes are devoted to roses. The first two are for teas and hybrid teas, the third and fourth for ramblers, and the fifth and sixth for types other than those mentioned. In each class the blooms are to be shown in vases. Incidentally, I am not sorry there are no box classes. We shall thus, I hope, be spared the sight of the over-dressed rose, a common sight when shown in boxes. By exhibiting in vases the foliage plays a part which is almost lacking, of necessity, in box classes. One point suggests itself, those varieties with good long stems, granted equally good blooms, will at least more readily lend themselves for "setting-up" effectively, than the shorter stemmed ones.

At this date important factors which will lead to success are good healthy plants, growing in a satisfactory soil.

If the rose beds have not been given a dressing of lime for the last two years they should certainly be given a good sprinkling at once. Ground quick lime is best for strong loam and chalk for lighter soils. This is particularly necessary after the excessively wet winter.

As it is advisable to give a top-dressing of decayed manure immediately after pruning, no time should be lost in giving the lime as the two should not be given together. After an interval of a few weeks the top-dressing of farmyard manure should be given, together with a good sprinkling of bone meal, and lightly forked in.

Rose pruning, if not already completed, should be finished as soon as possible. To some extent the nature of the pruning will be governed by the variety and its condition at pruning time. For exhibition blooms fairly hard pruning is desirable. The growths should be shortened according to their strength, the smaller the shoot the harder should it be pruned. As new shoots develop, all weak ones should be removed, and every shoot retained should be considered capable of producing an exhibition flower. All lower buds except the terminal one must be carefully pinched off.

Records prove that we get, more often than not, very dry spells in May and early June. This is the most critical time for growth, and coincides with the ideal time for encouraging growth and bud development. Should it be dry, applications of clear water should be alternated with weak manure water made from cow or horse manure and soot. Even in a season of normal rainfall, two or three manurial waterings will almost certainly be beneficial. Stirring the surface soil must also be considered essential.

Roses for the rambler class, at the end of June will be obtained principally from the multifloras and the early-flowering Wichuraianas. It will be too early for the late-flowering Wichuraianas of what one might term the Dorothy Perkins type. Assuming that the plants are well established, that they have strong, well ripened shoots capable of producing good trusses of bloom, the main point will be to provide them with frequent weak manure waterings during May and June and to keep down pests.

Classes 6 and 7 are for roses other than tea, hybrid tea or rambler. Three blooms of each variety.

If it is intended, as it appears to be, to admit any type other than those mentioned, the wording is not good. Some delightful species, such as Moyesii and Hugonis or Penzance hybrids would not look their best staged as single blooms, and dwarf polyanthas would not be admissible. It would appear then that hybrid perpetuals and Pernetianas would be the best types to show. These would in themselves make a charming exhibit. It would be as well if the Society gave a definite ruling on this point before it is too late.

Classes 7 and 8, for delphiniums, should prove very popular.

It will be interesting to see whether the more recent novelties will surpass such grand varieties as Millicent Blackmore, Sir Douglas Haig, The Alake, Statuaire Rude, King of Delphiniums, Harry Smetham, Lamartin, Nettie and Rev. E. Lascelles. Prize-winning spikes will probably be obtained from plants which have been established a year. The first essential detail will be the restriction of growths to not more than three or four or even fewer to a plant. The weaker ones should be removed when the shoots are about 6ins. high. Staking, watering and feeding are other points which must on no account be neglected. Each shoot must be carefully supported by a bamboo cane placed in position early and tied as necessary. Hollow-stemmed plants like the delphiniums are great absorbers of water and this should be given in abundance during May and June if at all necessary, and an occasional weak liquid manure watering. In addition some bone meal lightly forked around the plants in early spring will be valuable. The effect of this and the waterings will be to add size to the blooms and length to stem, and possibly to intensify the colour of the flowers.

Classes 9, 10 and 11 are for sweet peas.

These will come as a preliminary to the National Sweet Pea Society's Show a fortnight later. Those who made an early start by sowing the seeds last October should have no difficulty in getting plenty of flowers by the end of June. Sowings made early in the year in gentle heat should also be ready. Planting should take place as early in April as climatic and soil conditions will allow. Deep digging is essential and the soil must be enriched with well rotted manure. Lime is of great importance too, and the sweet pea is also a lover of potash and should have it in some form. In the final preparation of the soil, artificial manures at the rate of 1 lb. of bone meal and 1 lb. of sulphate of potash may be given to every 20ft. run of row. The plants must have plenty of space, about a foot apart in a double row being usual. The weaker growers, such as the orange shades, should be allowed only one main shoot per plant, but the strong growing varieties can well support two or even three. Beyond one good watering to settle the soil it will be better to avoid this for some time, as it would only tend to keep the roots cold.

Dustings of soot may be necessary to ward off slugs. After a few weeks of apparent quietness, during which time the plants are rooting, if not making much growth, they will grow away rapidly if anything like genial weather prevails. Tying the shoots to their supports, pinching out all side growths and tendrils, confining the plants to the leading shoot only, will be work of almost daily importance. By the end of May the plants will have got well up the stakes and possibly have commenced to bloom. At this stage feeding should begin and can be given in the form of weak liquid manure waterings and soot. Cold water direct from taps should not be used owing to its chilling effect on the roots, and the danger of such a check must be avoided.

Sulphate of potash, ½ oz. to a gallon of water, may be given if the weather is very warm and trying to the plants, using this quantity to four plants. Under such conditions a mulching with short manure, lawn clippings or leaf-soil will help to conserve moisture. Blooms must be regularly gathered, or it may be decided to remove buds until wanted for show. Three weeks must be allowed for safety. If warm weather prevails, two weeks would be sufficient to allow, but such a risk should not be run. A good exhibition bloom should have a stem 12ins. to 15ins. long, with four well-coloured flowers, well placed on the stem.

Classes 12 and 13 are for gladioli.

It is fairly safe to say these fine flowers were never more popular than they are to-day. The charming primulinus hybrids are great favourites, especially for cutting. Whether they will play a big part in the above classes is, however, doubtful. Exhibitors will probably depend upon the larger-flowering types. The date of the show is a little early for gladioli, and it will be necessary to anticipate this and gain a month by starting the corms in pots and planting out later. Or they can, of course, be grown and flowered in pots. For planting out, potting should have been done as early in March as possible, and a fairly rich compost of loam, leaf-soil and decayed manure used. One corm will require a 5in. pot. The pots should now be in a cold frame, and watering should not be necessary till growth begins. Planting out may be done towards the end of April, by which time growth should be a foot high. Staking the spikes early is important. If the position is an exposed one some protection should be given just before blooms commence to open. Stirring the soil, keeping free from weeds, watering as necessary, and when flower spikes develop with some weak manure water, will constitute other cultural details.

ARTHUR J. COBB.

(To be continued.)

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GARDENING OF THE MONTH

FLOWER GARDEN.

ANNUALS AND BIENNIALS.—Sow hardy kinds in open ground in reserve beds and mixed borders. Thin out as soon as ready. Prick out hardy annuals sown last month in reserve beds. Sow at end of the month half-hardy annuals which will not transplant. Sow seed of aquilegias, sweet williams and wallflowers on a warm border.

ANTIRRHINUMS AND PENTSTEMONS.—Plant out rooted cuttings which are now in cold frames.

CALCEOLARIAS.—Plant out at end of the month.

CHRYSANTHEMUMS, BORDER.—Plant out in firm rich soil.

GLADIOLI.—Plant in large clumps on rich, well drained soil.

GRASSES, ORNAMENTAL.—Sow seed now.

HERBACEOUS BORDERS.—Hoe, keep a watch for slugs. Place ashes round such plants as delphiniums. Fill up any gaps with annuals and biennials.

HOLLYHOCKS.—Prepare site by digging well. Plant out at end of the month.

NYMPHÆAS.—Plant now in baskets filled with turfy loam and leaf-soil.

PANSIES AND VIOLAS.—Plant out in permanent positions.

PYRETHRUMS. — Transplant single and double kinds now.

ROSES.—Prune Teas and Noisette roses. Finish pruning Hybrid Teas. Fork in a light dressing of manure. Mulch newly planted roses and roses on light hungry soils. Spray with nicotine wash to keep down aphis.

SWEET PEAS.—Plant out those in pots and boxes. Stake well before planting. Sow seed on prepared ground. Protect young plants from cutting winds with spruce branches. Tie up young growths and protect from slugs.

VIOLETS.—Break up old clumps after flowering. Plant out in lines on well dug ground. Water and syringe if weather warm. Plant out violet cuttings rooted in frames.

LAWNS.—Mow weekly. Weed, and apply lawn sand.

FRAMES.—Start another batch of bedding begonias. Propagate perennials by inserting basal cuttings in sandy compost in frames. Prick off annuals sown in frames last month.

HARDY FRUIT.

APPLES AND PEARS.—Spray with nicotine wash just before flowers open, and with lead arsenate when they have set, to keep down attacks of codlin moth, March moth and apple-blossom weevil. Guard against pear midge. Apply methylated spirit with stiff paint brush to portions attacked with American blight.

APRICOTS.—Spray with Katakilla or good insecticide. Protect when flowering.

BLACKBERRIES.—Train on trellis or fence.

BLACK CURRANTS.—Spray with soft soap solution and quassia extract to check big bud.

CHERRIES AND PLUMS.—Syringe with quassia extract to prevent an attack of aphis. Give a light dusting of lime.

GOOSEBERRIES.—Examine for caterpillars. Hand pick or spray. Do not use lead arsenate.

GRAFTING.—Proceed with operation when sap rising. Graft cherries and plums first. Examine grafts done in March, fill up any cracks with grafting wax.

PEACHES AND NECTARINES.—Protect when flowering. Disbud shoots gradually. Guard against aphis and peach-leaf blister.

RASPBERRIES.—Hoe the ground and give a good mulch of manure.

RED AND WHITE CURRANTS.—Spray with paraffin emulsion to keep down currant moth.

STRAWBERRIES.—Hoe the bed. Give a dressing of artificials and soot and then a mulch of manure.

WALL FRUIT—Protect from frost when in bloom. Syringe with insecticides after flowering, to keep down aphis. Water trees under copings.

VEGETABLES.

ASPARAGUS.—Prick over the beds. Give a light dressing of nitrate of soda and, later, salt and soot. Prepare and make new beds. Plant young crowns, cover immediately with 4ins. of soil. Sow seed in nursery beds.

ARTICHOKES, GLOBE.—Make new plantations on well trenched ground. Plant strong side suckers. Mulch with long litter when finished.

BEET.—Sow globe beet on warm border. Do not select ground which has been recently manured.

BROAD BEANS.—Make a final sowing. Draw up soil round young plants and support the growths. Plant out those now in boxes. Watch for slugs.

CABBAGE AND CAULIFLOWER.—Prick out early sowings and make another sowing.

CARROTS.—Dust young seedlings with soot early in the morning. Hoe regularly. Make another sowing after dressing the ground with soot and wood ashes. Thin seedlings early.

FRENCH BEANS.—Sow a batch at the end of the month, and sow at the beginning of the month in frames.

HERBS.—Sow annual kinds. Divide and replant perennials.

LETTUCE.—Make sowings every fortnight and thin early, and transplant.

LEEKS AND ONIONS.—Plant out those raised in heat after hardening off, select mild showery weather for the operation. Sow main crop.

PEAS.—Plant out soon those in boxes. Stake seedlings soon. Make sowings every fourteen days. Sow main-crop marrowfats.

POTATOES.—Finish planting. Protect early varieties as soon as they are through the ground by drawing up soil round the shoots.

SEAKALE.—Plant out root cuttings. When well started reduce growths to one strong one to form a good crown.

SEED SOWING.—Make sowings of Brussels sprouts, rad shes, turnips, savoys, kohl-rabi, kale, parsley, New Zealand spinach, spinach and scorzonera. Thin seedlings as soon as they are fit to handle, and hoe frequently between the lines. Sow cardoons and celeriac in a frame.

SHALLOTS.—Plant on good ground.

FRAMES.—Ventilate well carrots, lettuce, etc.

SHRUBS.

PRUNING.—Clip ivy on houses and walls. Prune Buddleia Veitchiana, Ceanothus Gloire de Versailles and Hydrangea paniculata, if not already done.

GENERAL. — Hoe ground round newly planted trees and give them a light mulch. Rake and tidy shrubberies. Examine stakes and supports of shrubs.

ROCK GARDEN.

GENERAL.—Pick off all dead leaves and flowers. Restrict large clumps of arabis, aubrietia, cerastium, vinca, etc. Lightly stir the soil in between the plants. Plant out alpines now in frames. Finish top-dressing.

ANNUALS.—Make sowings in patches.

FLOWERS UNDER GLASS.

ABUTILON EUPATORIUM, ETC.—Re-pot old plants. Propagate by cuttings abutilon, cytisus, etc.

ANNUALS.—Stake and tie pot plants. Prick off seedlings for flowering outside, place in frames at end of the month.

BEDDING PLANTS.—Pot off seedling begonias, petunias, verbenas, etc. Shift all possible kinds into frames at end of April, and allow them to harden before planting outside. Remove specimen plants to cooler quarters.

BEGONIAS.—Pot up tuberous kinds as they start into growth.

CAMELLIAS.—Re-pot those which have not sufficient root room. Give weekly applications of liquid manure to young plants.

CANNAS.—Pot up as they start into growth; use 5in. pots.

CHRYSANTHEMUMS.—Re-pot and, later, pinch the points.

DAHLIAS.—Place pots in frames at the end of April to harden.

FORCED SHRUBS.—Prune deutzias, prunus, lilacs, etc., after flowering, and plant outside in a rich border. Prune forsythia.

FUCHSIAS.—Pinch when growing well, but not at the time of potting.

GREVILLEA ROBUSTA.—Pot up seedlings.

IVY GERANIUMS.—Re-pot now.

LILIUM AURATUM AND L. SPECIOSUM.—Bring from the frames into house. Do not give too high a temperature.

PERPETUAL CARNATIONS.—Pot late-struck plants into 6in. pots.

PRIMULAS AND CINERARIAS.—Sow seed in well drained pans.

ZONAL PELARGONIUMS.—Give another potting, and press soil very firmly.

GENERAL.—Give less heat as the days become warmer. Ventilate well, but guard against cold draughts. Prick off young seedlings and place on airy shelf near the glass. Harden off gradually plants which are to flower outside. Shade some plants if the sun is strong at the end of the month. Fumigate to keep down aphis.

FRUITS AND VEGETABLES UNDER GLASS.

APRICOTS.—Disbud before the shoots are too long. Remove those on underside and back. Leave well placed extension shoots. Attend to watering and feeding.

FIGS.—Pinch out all weak growths. Pinch back laterals to four or five leaves. Water frequently and syringe twice daily.

ORCHARD HOUSE.—Pollinate the flowers. Give drier conditions when in bloom. Ventilate well, but avoid cold draughts. Fumigate when fruit has set and syringe twice a day.

MELONS.—Pollinate and maintain a drier atmosphere when fruit setting. Pinch out point one leaf beyond the fruit. Continue pinching, stopping and tying for more advanced plants. Start damping and syringing again when fruit has set. Water regularly and very carefully; do not allow any water to touch the stems of the plant.

PEACHES AND NECTARINES.—Disbud shoots and thin fruit. Do the work gradually. First remove ill placed and misshapen fruit and, later, any extra fruit. Give more air to peaches when stoning. Syringe forcibly to keep down red spider. If attacked, spray with liver of sulphur. Fumigate with nicotine to keep down aphis. Water whenever necessary and feed at intervals with liquid manure or Thomson's manure. Feed occasionally with guano.

VINES. — Continue stopping laterals and tying. Thin grapes gradually; do not handle bunch. After thinning, dress the borders with vine manure. Give higher temperature when muscats in bloom.

CUCUMBERS.—Tie up and stop growths. Syringe and damp down. Keep temperature high, ventilate very carefully.

DWARF BEANS —Sow in boxes to form a succession.

MARROWS.—Make another sowing. Plant out young plants on a hot-bed.

MUSHROOMS.—Keep house moist and, if heated, lower the temperature. Prepare manure for beds outside.

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SIMPLE GARDENING

ANTIRRHINUMS.

IT is possible to have blooms of these plants available ten months out of the year with the aid of a greenhouse and if the right varieties are grown. But the great majority of cultivators are satisfied if they obtain a nice display during the summer months. There are many lovers of these charming flowers who do not fully understand their treatment, and these notes may be helpful to such. The seeds should be sown in a frame or greenhouse during February. At this date all resultant seedlings should be about ½in. high and possessing four small rough leaves. Readers who wish to purchase young plants from firms advertising in THE GARDEN should order them to be sent out early in May, then they can be kept on a bed of ashes in a sheltered position till early in June, when the general bedding-out work is done. The young plants, during May, will become gradually hardened, and this should be the treatment of home-raised stock. From March to May the tiny seedlings should be transplanted, either in boxes, or beds in frames, 3ins. apart each way. Antirrhinums thrive in a medium-light compost in which some old mortar rubble has been mixed. Frame treatment is suitable and ensures stocky plants with judicious ventilation. The plants thrive in well drained soil and often fail in very wet ground. There are many lovely distinct colours which will please everyone, but the pink-flowered variety Nelrose should be included as it flowers a long time.

SOWING GRASS SEEDS.

In some gardens it is necessary to sow a few grass seeds every year in spring or early autumn, because certain lawns become patchy owing to character of soil or situation. Then, of course, there are the small lawns to be constructed either from seeds or turves. The latter are not always available; the seeds are, and if the owner will take the trouble thoroughly to free the soil from the roots of coarse weeds, he may soon possess a perfect lawn as our seed firms now take great care in the preparation of their lawn grass seeds. Few lawns are quite level; large, undulating ones are charming; even medium-sized ones may be so made on a modified scale, but the quite small affair should be level, or nearly so. In the case of clayey subsoils the surface should be 3ins. lower at one side or end, then water will not lodge on it. The soil should be well broken on the surface, raked and firmed while in a fairly dry state. Having done this work, very lightly mark out 1yd. squares, and then sow the seeds pretty thickly, finishing one square before sowing seeds on another. In this way the whole lawn space will be evenly sown. It will not be difficult to procure sufficient fine soil just to cover the seeds on a small area, but on larger ones the seeds should be neatly raked in. In all cases some immediate rolling will be beneficial, and a few strands of black cotton stretched across will keep off birds.

DAHLIAS FROM CUTTINGS.

All tubers of dahlias that were placed in boxes or on stages and partly buried in a light compost several weeks ago will now furnish nice slips suitable for cuttings. The amateur may succeed with the cuttings either in a propagating frame or in a frame on a hot-bed. Of course, there is, during the first three or four weeks after construction, a constant dampness in the frame arising from the fermenting material and as the stems of the cuttings are very soft and fleshy, care must be taken to prevent loss through damping-off. Always leave a small opening at the top of the frame, then the rank steam will escape. From strong cuttings very sturdy plants may be grown, and these will bear excellent flowers. The cuttings root in three weeks

time and so there is every opportunity to grow them on in pots or boxes in a cold frame and have strong specimens to plant out early in June. I like to propagate several cuttings in a small pot, inserting them round the sides as shown in the sketch. The best compost is one made of loam and leaf-soil in equal proportions and plenty of coarse sand. The letter *a* shows the old stem; *b*, old tuber; *c* and *d* show where to cut off the stem below a joint and the two leaves; *e*, sand on the surface; *f*, sand at the base of the cutting; and *g*, the depth to plunge the pot in the bed. Very careful watering is necessary.

TRANSPLANTING ONIONS AND LEEKS.

Small onion bulbs and rather thin leeks result when the seeds are sown in the open border late in March and during the first half of April. The small onions keep well when harvested and stored, but many cultivators like to grow some big specimens and such can only be obtained by sowing seeds under glass early in the year and transplanting the resultant seedlings. Now, having cared for the latter during their early stages of growth, it is essential for success that very careful treatment be the rule when transplanting the young onions and leeks in their final quarters. Rich, firm ground is necessary, but the firmness must not be obtained by treading or rolling the soil while it is rather moist. Indeed, I do not advocate treading except in the case of very light soil, and the surface portion, even then, should be quite dry. Heavier soils will be firmed by the treading necessary when preparing them for the young plants. I am presuming that the soil has been well manured at digging time. If not, in the case of leeks, trenches quite 2ft. deep and 18ins. wide should be opened and rotted manure freely mixed with the soil as two-thirds of it is replaced. The trench will accommodate two rows of plants at 1ft. to 16ins. apart. The surface of the soil for the onions should be made black with soot, the latter lightly forked in and the onions planted 9ins. apart in rows 14ins. asunder. Every bit of fleshy root should be retained and planted straight down with the aid of a hand trowel. Only the roots should be buried.

VENTILATION OF HOUSES.

During the spring months the correct ventilation of glass houses and frames is a very important matter. There is abundance of tender foliage now under glass. Outside, we often feel the cold, chilling east winds and do not like them. The young shoots, if unduly exposed to them, are checked and become, in some instances, stunted; then another evil befalls them—attacks by aphides, which live on their juices. If our greenhouses, fruit houses and frames are to be ventilated in a proper way, we must watch the weather conditions practically day and night. When cold winds prevail and, at the same time, the sun is very hot, it would be a mistake to keep a glass structure quite closed till, perhaps, the middle of the forenoon and then suddenly open wide the ventilators to lower the temperature, which may be approaching 100° Fahr. If, through unforeseen circumstances, houses are closed in this way, the ventilators should be opened a little only, and so that a cold current of air will not be admitted. A sprinkling of water on the floor will help matters, and the house should be closed early in the afternoon. Early in the morning admit a little air, and gradually increase it according to outside conditions. Where possible, in the case of frames as well as houses, admit air on the side opposite to that on which the wind blows. Cold draughts soon cause mildew on young vine and rose foliage under glass and should be guarded against. GEORGE GARNER.

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CORRESPONDENCE

BLACK SPOT ON ROSES.

SIR,—As the outcome of a short article which appeared in THE GARDEN a few months ago regarding a remedy and palliative for that troublesome rose disease known as black spot, I have had many letters of enquiry as to the nature and strength of the mixture and manner of application. The preparation itself which we had found successful is a proprietary liquid called "Tarbol" (manufactured by The Chemical Union, Limited, Ipswich). At Oxted we find that satisfactory results are obtained when mixed and used in the following manner: A solution is prepared in the proportions of two tablespoonfuls of "Tarbol" to a three-gallon can of water. Immediately any signs of black spot make their appearance, as noted by the discoloration of the leaves, the plants are sprayed twice a week. If it is found that the disease has attacked the bed as a whole, the soil is drenched several times during the winter months, right up to pruning time, and so long as there is no new growth on the foliage a slightly stronger solution can be used with safety and advantage. Where the question of such a troublesome and spreading disease as black spot, or, indeed, any similar complaint, is likely to affect the life and growth of a rose, we act upon and thoroughly believe in the principle that "Prevention is better than cure."—HERBERT L. WETTERN, *Oxted*.

IRIS TINGITANA.

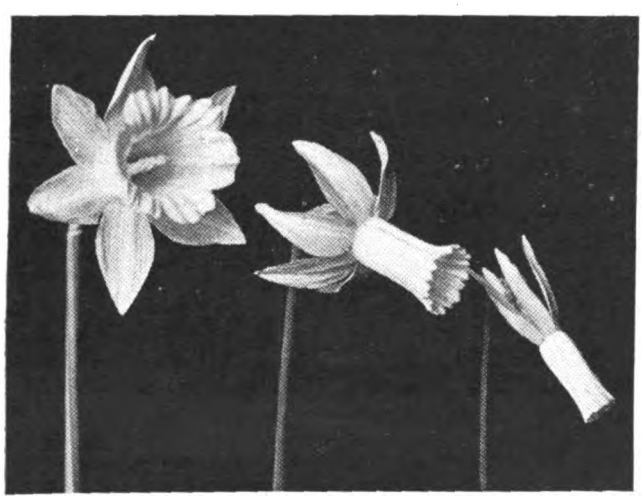
SIR,—Perhaps my experience in growing Iris tingitana may be of interest to your readers. I obtained the bulbs from Messrs. Wallace of Tunbridge Wells, and at the end of October potted them in fibre without drainage and kept them in an unheated cellar till they had made a good start, then removed them to the windowsill of a room facing due south but having no artificial heat. This treatment suited them very well, and they made rapid growth. As soon as the buds were well advanced I transferred them to a sunny room having the additional heat of a fire, and by Christmas they were in full bloom with strong stalks and good foliage. I believe they could have been grown entirely without fire heat had they been potted a month or six weeks earlier.—W. CHAMBERS.

LIMESTONE SOILS.

SIR,—In the various discussions on plants which thrive or do not thrive on limestone soils there is one point which I have not yet seen referred to, namely, the depth of the soil. I suggest that in this point may perhaps lie an explanation of some of the anomalies which have puzzled us. My own garden is upon the greensand with a depth of a good 10ft. of sandy loam. On this soil I can grow ericaceous plants and rhododendrons, if plenty of water is given. A few hundred feet away, where the soil is only 2ft. or 3ft. deep before the rock is reached, this would be impossible. It seems, therefore, very probable that all the lime has been washed out of this deep soil, and as we are now told that rain, having passed through the first few feet of soil, never returns, there would be no danger of the lime being brought up from below.—E. A. BUNYARD, *Maidstone*.

MINIATURE DAFFODILS.

SIR,—After reading the article on miniature daffodils by Mr. Edward Cahen in THE Garden for March 14th, with its suggestions for hybridising these charming little flowers, I feel sure your readers will be interested in seeing the enclosed photograph, which shows rather clearly what can be done by crossing a yellow trumpet with pollen of Narcissus cyclamineus. I took this photograph seventeen years ago. I have since then crossed yellow trumpet daffodils with the pollen from a seedling from N. Emperor crossed with N. cyclamineus, and have again crossed yellow trumpets with pollen from seedlings resulting from this secondary cross, and have had as a result glorious deep waxy yellow flowers as large as Emperor with scarcely any reflex in the petals and, curiously enough, I can almost always identify these seedlings by the little creamy tip to the perianth segments. In my experience these seedlings have not got good constitutions, and I am afraid it would be found that this is the drawback with all hybrids of these miniature varieties. I have found only a small percentage of triandrus hybrids are satisfactory in this respect. Trumpets crossed with bulbocodium in my experience produce the most appalling atrocities. Minimus and cyclamineus will intercross, and I have a delightful natural hybrid between these two which appeared in a grassy bank where its two parents had been naturalised for some years.—W. A. WATTS, *St. Asaph*.



N. OBVALLARIS. HYBRID. N. CYCLAMINEUS.

SEEDS AND SEED LISTS.

SIR,—One sentence in Mr. Eric F. Wettern's letter prompts me to put pen to paper in defence of British seedsmen. Mr. Wettern says: "It has always been a mystery to me why there is apparently no English firm sufficiently enterprising to cater for this branch of horticulture." The branch referred to is stocking and cataloguing seeds of trees and shrubs. The reason why is simply the smallness and uncertainty of the demand. There are some enthusiasts, like Mr. Wettern, who "indulge in the fascinating pastime of tree and shrub propagation," but they constitute a small circle, usually well acquainted with each other and mutually interested in their pursuit. One sows seeds of certain shrubs, another some other kinds, and each has some surplus seedlings which, naturally enough, will be passed on to friends rather than wasted. That is quite an agreeable arrangement for the amateur, but the seedsman, in order to supply a customer with a half-crown packet of some particular shrub's seeds, sends abroad for enough seeds for at least a dozen packets. These are packeted, catalogued, put into stock, in all probability to remain there, and the seedsman finds it works out that in purchase, correspondence, postage, packeting and cataloguing he has spent a pound and received 2s. 6d. Meanwhile he has sold sacks of peas and pecks of onion, carrot and radish seed because they are in general demand, and the practice of exchanging and giving is less prevalent among the masses than among the few specialists.

That the foreign seedsman can always supply seeds of trees and shrubs is no indication of greater enterprise, but simply that he is the wholesaler of these particular lines, and can always fill an odd order without specially providing for it. If Mr. Wettern can persuade a few thousand amateurs to buy seeds of trees and shrubs, the British seedsman will show no lack of enterprise in this direction, but I have in my time helped to burn the seeds that were stocked in readiness for orders which failed to come after circulation of a very good catalogue.—A. J. M.

SEQUOIA GIGANTEA.

SIR,—Perhaps you would like to add to your sequoia records the following: Planted 1856, at Hatch Beauchamp, Somersetshire; height in 1863, 11ft. 6ins.; the growth in 1862 was 21ins. Planted 1859, at Rev. J. Gould's, Burwash, Sussex; 1863, April, height 5ft. 10ins. The same diary notes Araucaria imbricata and Cedrus Deodara, planted 1841, and states that in 1860 the Araucaria was 26ft. high and the Cedrus Deodara 28ft. I wonder if any of the above survive.—GEO. DILLISTONE.

SLUGS IN THE GARDEN.

SIR,—In reply to your correspondent "Formakin" *re* slugs, I quite agree that my statement that 15,000 slugs per day were killed last season in our kitchen garden may sound comical or all but incredible to anyone who did not see the pests or was not responsible for the supply of flowers or vegetables from the garden these pests had invaded, but I can assure "Formakin" my feelings changed from comical to desperate when confronted with such a serious menace. Does "Formakin" think it possible for anyone to pick eighty-seven slugs off one delphinium shoot not more than 9ins. high in the evening and secure fifty-four off the remains of the shoot next morning? The stool of the delphinium had previously been well "ringed" with Vaporite as a "protection." There was nothing comical from my point of view in planting over 3,000 onions on the Monday and looking on bare ground on Wednesday. Six rows each 58yds. long yielded fewer than a dozen parsnips, and double the number of onions resulted in nothing. One row of parsley over 60yds. long took me over an hour night and morning to clear of slugs, the "bag" in each case never being much below 1,000. I do not think any edging would have done me any good, as I found quantities of slugs up the peasticks, and plenty climbed up the gooseberry bushes and fed off the leaves. I am blest with a good edging in the flower garden in the form of miles of box edging, and in addition huge beech hedges, several yew hedges. In my efforts to destroy the slugs I used 40 bushels of soot, 1 ton of slacked lime, 2cwt. of slug destroyer, 2cwt. of Vaporite, 2cwt. of Terrafumite and various washes.—F. C. KING.

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A FEW NAMES

FOR my own edification, I have lately been looking up the origin of some of the weird names that are tacked on to plants coming from eastern Asia. As these names may be puzzling to readers of THE GARDEN, I give a few origins which are derivative from foreign explorers in the East.

Albrechtii (Rhododendron Albrechtii).—Dr. Albrecht, a Russian Naval surgeon, born in 1821, spent six years in Hakodate in Japan, where he made large collections.

Bungeana (Pinus Bungeana).—Dr. Alexander von Bunge, an eminent Russian botanist, born in 1805, was sent to Pekin as a botanist in 1830. He collected extensively in the Peking plain until he quarrelled with the Chinese authorities, who forbade him to go outside the walls of the city.

Davidi (Acer Davidi).—The Abbé David, the earliest of the three great French missionaries to whom we owe so many of our Chinese plants. He joined the Mission of the Lazarists in Pekin in 1862. He made three notable journeys, the first in 1866 to southern Mongolia; the second, 1868–70, in central China and eastern Tibet; the third, from 1872–74, through Chili, Honan, Shansi and Kansu. All these three journeys were north of the Yangtze.

Decaisnea (Decaisnea Fargesii).—Decaisne was a skilled Belgian horticulturist born in 1809, after whom J. D. Hooker called a new genus.

Delavayi (Magnolia Delavayi).—Père Delavay arrived in China in 1867. Collected in Hupeh, Szechuan and Yunnan, but principally in the latter. M. Franchet recounts how he received specimens of over 4,000 species from this indefatigable botanist.

Desfontainea (Desfontainea spinosa). — 1750–1833. Desfontains, Professor of Botany of the Royal Garden, Paris. A new genus was called after him in 1794.

Fargesii (Rhododendron Fargesii). — Père Farges, a French missionary who collected in north-eastern Szechuan and in Shansi from 1892 onwards.

Maackia (Maackia amurensis).—Maack, Professor of Natural Sciences at Irkutsk in 1852. Travelled widely in Eastern Siberia.

Maximowiczii (Primula Maximowiczii).—Dr. Carl Maximowicz. The most prominent botanist that Russia has produced, born in 1827. Travelled in Mongolia, Manchuria and Japan.

Potanini (Rhus Potanini).—Grigori Nicolaevitch Potanin, one of the most eminent of all Russian travellers. Made four great journeys in Mongolia and north-western China and Tibet from 1876 to 1894. In early life he became head of a curious Siberian conspiracy which aimed at setting up Siberia as a separate kingdom. For this he spent six years as a convict. Probably his best known introduction was Rheum Alexandræ, called after his wife.

Schlippenbachii (Rhododendron Schlippenbachii). — Called after Schlippenbach, a Russian naval officer whose only claim to fame is that this fine rhododendron was called after him. A rhododendron by any other name was just as sweet.

Thunbergii (Berberis Thunbergii).—Thunberg was a famous Swedish Professor of Botany, who lived from 1743–1822 and wrote the "Flora Japonica."

Weyrichii (Rhododendron Weyrichii).—Dr. Weyrich, a medical officer in the Russian navy in the middle of the last century. He botanised in the Far East wherever his boat took him.

One other name that bothered me was "tangutica," which is the specific name of several well known plants, among them Clematis tangutica. As far as I can make out, the Tanguts is an old name for a tribe which either inhabits or used to inhabit that undefined corner where Tibet joins China on the one side and Mongolia on the other.

I have left out a few names, like Przewalski, when the plants called after them are very uncommon. Some of those names are almost human, but I feel better about even the worst of them now that I have found out that those whose names they were supposed to perpetuate actually lived at some time or another.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

OLD-FASHIONED FLOWERS.

ALPINE PLANTS FOR THE GREENHOUSE, by J. T. Harris.

BULB NOTES, by the Rev. J. Jacob.

THE MODERN GLADIOLUS, by Chas. W. J. Unwin.

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FRAGRANCE in the SPRING GARDEN

IN THIS ARTICLE THE AUTHOR DESCRIBES A FEW PLANTS WHICH SHOULD BE INCLUDED IN ALL GARDENS FOR THE SAKE OF THEIR FRAGRANCE DURING THE SPRING MONTHS.

FRAGRANCE—that sweet, subtle, indefinable grace—is necessary throughout the whole of the garden if it is to live and linger in the memory as a place of beauty and charm. And, in writing "throughout," we make no exceptions whatever. In the kitchen garden we demand our fragrant herbs—our lavender and lemon thyme. In the shrubbery, our delicate bay, daphne and other sweets. In the rose garden, our sweet briar and perfumed roses—and so the story goes on through every bed and border, a complete chain of separate, distinct—sometimes blended—but never competing scents.

Fragrance in some directions is in danger of becoming lost, and it is up to some of us to see that this precious heritage from the past is not lightly cast aside for mere size or colour or other beauties that please the eye but fail to make the slightest appeal of scent. This is the case with far too many of our popular modern varieties of the rose and the sweet pea, while Nature herself, possibly in a fit of pique or as a punishment, has withdrawn the perfume from the musk, which used to run almost as a wilding in the memory garden of our childhood's days.

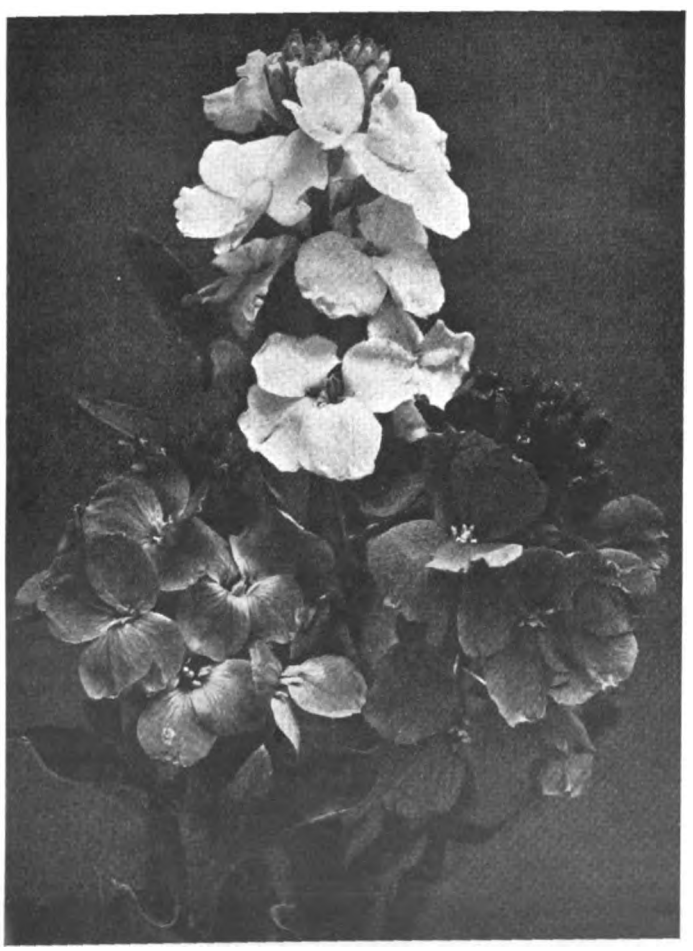
Especially do we demand fragrance in the evening garden, when in the grateful coolness of the dusk we wander once more along the flowery paths to drink in great wafts of the perfume of the old time white jasmine, the tobacco flower and the all-penetrating and all-pervading night-scented stock. The latter is a wonder, and a broad breadth of it sown near the room that is chiefly occupied during the evening is a delight, both indoors and out, for many months. Nothing could be simpler than this, for all one has to do is to rake over the surface soil in early April, scatter the seed thinly, gently pat the soil, and we shall soon have a bountiful crop of tiny seedlings that give so poor an impression of their future possibilities. The capacity is there, however, and those slender-looking plants are going to branch and branch until not a speck of bare ground is visible and the tops are literally smothered with a tangle

THE SPRING SNOWFLAKE, LEUCOJUM VERNUM, LOOKS WELL IN CLUMPS.

of the tiny starry pinkish purple flowers that advertise their presence over the whole garden. Another, less powerful, but by no means to be despised, evening perfume comes from the evening primrose that so regularly expands its huge primrose flowers each evening by taking off the pointed cap and unrolling the closely packed petals. Among the many day-scented flowers that become more odorous at night may be mentioned the lilies, and especially those later-flowering forms auratum and speciosum. These are indeed only open air flowers, for, if one cuts and brings them within doors, the perfume soon becomes so powerful as to be unpleasant.

Let us, however, be systematic and not drift into generalities. Spring, opening its welcome to the year of flowers, is a very important time and, happily, bulbous and other flowers may be found in plenty that will add their quota of perfume to the rapidly accumulating treasures that are expanding upon all hands. Many of these are old-world plants, too, that thereby add an extra charm to the scene. Are there not the jonquils, most fragrant of the smaller narcissi; the poeticus and double white, again both full of delightful perfume, and no less attractive from the floral point of view? Equally valuable and considerably earlier is the hyacinth, a flower that loses all its stiffness when brought into the house and skilfully arranged with sufficient suitable foliage. The colour range is so wide and varied, too, that kinds may be chosen that will "fit in" with any possible scheme of colour decoration. Wallflowers are a host in themselves, and I have yet to meet the person who did not at once fall a victim to their charms and sniff—and sniff again—at the delicious odour that seems to typify all that is best in a real spring day. Plant these generously in broad sweeps and drifts, not in niggling little beds, and you will gain in every way, for not only will the garden be a blaze of rich satisfying colour and fragrance, alive with humming bees, but there will be no lack of the best possible material for the vases and to give away.

Among the earliest fragrant flowers of spring comes the Daphne Mezereum, to find which we must visit the shrubbery. Here, in a protected spot before January has passed, it is often possible to cut long stems of these gloriously scented blooms, a few of which suffice to fill a whole room. Following hard upon the heels of this comes the wonderful Iris reticulata. This flowers—more or less—according to the season in February, although in a backward year I have known it to be early April before the first blooms expanded. The colour of the flowers, one upon a stem, is violet-purple heavily reticulated, with darker veins of a similar colour and a vivid orange stain in the middle of each fall. In order to encourage the earliest



WALLFLOWERS, RICH IN COLOUR AND FRAGRANCE.

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flowering, a sunny and well protected position should be afforded, while a well drained soil is absolutely essential. Rich soil must be avoided, as it encourages rank growth and, when this occurs, flowers are sparse because the bulbs fail to ripen fully. As an edging to large or small borders—it is only a question of varying the width of the planting—Milla uniflora is excellent and has the advantage of, unlike so many bulbous flowers blooming successionally for some time. The English name, spring star flower, conveys a very fair impression of the blooms, which are white, shaded with blue and deliciously scented. Yet another bulbous subject, which is rarely met with in gardens, is a variety of the muscari—moschatum or musk-scented hyacinth. This is not at all a conspicuous flower, for the little spikes of bells are greyish purple that fades off to yellowish brown, but the perfume is powerful and well justifies the name of musk hyacinth.

MYRRHIS ODORATA, SWEET CICELY WITH GRACEFUL HABIT AND FINE FOLIAGE.

Still among the bulbs, the poetaz narcissi are splendidly fragrant flowers that have abundantly vindicated their claim to complete hardiness. With the older polyanthus bunch-flowered narcissi it is a gamble whether one will get one's flowers or whether frost will nip them; but with the poetaz varieties one is quite sure. Size, colour, clearness of eye and fragrance are all beyond praise, and small groups disposed here and there in the borders make a most effective addition to our range of fragrant spring beauties. Polyanthus in mixture, whether in patches in the borders, as edgings or entire fillings for beds, etc., are so well known that no more need be said, for their spring-like fragrance is also abundantly appreciated. Stronger and more distinct than this in its delicate perfume is the auricula, another of the vast primula family, and he who owns a rich supply of these may certainly congratulate himself on the possession of a double store of treasure, for nothing else quite equals the glorious velvety texture and wonderfully rich colourings that are to be found in this best of all spring flowers for the hardy garden. A coarse-growing and common old plant that is, however, by no means devoid of scent and that gives wonderful cascades of snowy white flowers is Arabis albida fl. pl., but it should never be forgotten that this is such a rampant grower that it is only suitable for certain places in the garden where its smothering capacity cannot act to the detriment of other and choicer plants. Like a giant snowdrop, Leucojum vernum (the spring snowflake) is worth extensive planting, and may well appear in bold clumps in the rock garden, the shrubbery and the mixed border, wherever a touch of spring is desired. The drooping white flowers, touched with green at the tips of the petals, are a delight for cutting, and it is when used within doors that the delightful fragrance may be best appreciated.

Among the later spring-flowering bulbous rooted plants one finds a most unusual tulip that deserves to be far better known, for it is not costly and goes on year after year with no further attention than the preliminary planting. It is quite dwarf in stature, not more than 3ins., but even at this produces several fragrant flowers on each stem. A very sunny place should be allotted to the bulbs, for the flowers only expand when this is shining. The colour on the outside of the petals is golden bronze, while the inside is deep buttercup yellow, forming a very striking patch when the blooms are widely expanded into stars in the warm sunlight. One mentions Myrrhis odorata among the fragrances of spring because that is when it begins to flower, although this is carried on into early summer, and even after that one has the value of the graceful habit and the deeply divided leaves.

Before we realise that spring is passing we glide imperceptibly into the world of early summer, when the Spanish iris, the rockets and the pinks begin to expand and fill the air with new and delicious odours; but perfumes increase so rapidly just then and the number of varieties is so great that we must leave their consideration for a further article.

H. W. CANNING-WRIGHT.

THE "CHARM" DAHLIAS

If you get simple beauty and nought else,
You get about the best thing God invents.
ROBERT BROWNING.

THE simple beauty of the "Charm" dahlia is its greatest attraction. There is a single or double row of ray florets, a yellow disc, a wide range of pretty and in some instances almost indescribable shades and a thin, rigid flower stalk which gives grace to every bloom and makes it an invaluable subject for decorative purposes. There is no perfume—we do not expect it in a dahlia. I like, too, the simple beauty of the name. The word "Charm" fits the flower exactly. It is as delightful in the garden as it is when tastefully arranged in the room. To call them "Charms" is much more acceptable than to use the rather formal term of miniature peony-flowered dahlias. When this type was first introduced—and no person has worked more assiduously in their evolution and perfection than my good friend, Mr. Ernest Doncaster—there were many critics who scoffed at the idea of the "Charms" becoming popular. "We can obtain equally good flowers," said these critics, "from any mixed packet of dahlia seed." This idea is an illusion. The increasing popularity of the "Charms" is a practical answer to such an assertion.

An open site that is well sheltered from the prevailing winds suits the "Charms" admirably. The ground may be forked over some weeks before planting time and a liberal supply of well decayed animal manure worked into the soil at the same time. A sprinkling of bone meal and superphosphate is also beneficial. If time or circumstances do not permit of such preparation being done, all that is necessary to ensure success is to mark out the position of each plant and dig out a hole about 2ft. deep and fork into the lower spit of this a spadeful of manure, with a handful of artificials scattered in as the soil is replaced. Planting out may be done any time between the third week in May to the beginning of June. Early plantings are advisable, as the plants benefit by the favourable growing conditions of late May or early June. Firm planting is necessary. Usually the young plants are received from the nurseries thoroughly hardened and ready for their permanent quarters, and in most cases they are sent

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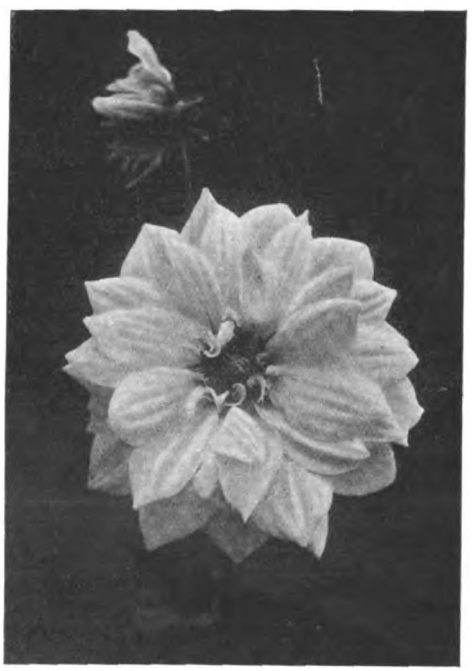
with the ball of soil intact. The plants do not show much visible change for the first few weeks after planting, but when once they become established they make rapid growth and necessary staking and tying should be done so that winds will not damage the sappy shoots. Ordinary bamboo canes are stout enough for supports as the plants seldom attain a height of more than 4ft. The average height is about 3ft. and the weight of the plant is not as heavy as the larger-flowered types.

All the " Charms " are free flowering, some of them being very floriferous. All faded flowers and seed vessels must be removed regularly in order to obtain a continued display of bloom. The plants will commence to flower in July, and if well grown will produce an abundance of bloom until the frosts cut them down. Some of the popular kinds, and in some cases the cheaper ones, are among the most beautiful, so that even a modest outlay will be many times repaid. Two of the prettiest of these—the forerunners of the race—are Norah Bell and Our Annie. Norah Bell is a lovely bright cerise on a yellow ground, a colour that is brilliant in sunshine and exquisite under lamp-light. The nearest colour in flowers that I can compare it with is the beautiful Cottage Tulip Cassandra. Our Annie is a soft shade of shrimp pink on a yellow ground. The yellow ground " Charms " are all delightful in artificial light, besides being attractive colours in the garden.

Little Edie, a different type of bloom from Our Annie, has much of the latter's beautiful colouring. It is a dwarf, bushy plant, and at its best is always a mass of bloom. Picture is another well known variety. The colour is very difficult to describe, chestnut and flame on a gold ground is the nearest approach, but there are many other pleasing shades intermingled in its colour composition. It is a variety that only needs to be seen to be admired. Gladys Unwin, another very free flowering type and a plant with a good constitution, is one of the best pinks. The distinct lemon zone in the centre lights up the flower and gives it an added charm. Elegance is a soft, silvery rose-pink, a very delicate colour, and the blooms are very freely produced. Rosie is a deep pink, but the colouring is soft and pleasing. This s also very floriferous. Trixie is an orange scarlet self, a colour that is somewhat like the early Tulip Prince of Austria. It makes a bold splash of colour and is one of the brightest for garden display. Crimson Glow is another rich self, an intense deep crimson. The flowers are freely produced and the stems are erect, strong and of great length. Dazzle is a brilliant scarlet that is consistently good. The flowers are of medium size and are carried erect on very rigid stems. This is a good variety for bedding or massing. Fusee is a softer coloured Norah Bell, one of the loveliest colours for room decoration in artificial light. It is very free-flowering and the stems are wiry. Other useful standard varieties include Bertha, bright rose suffused with crimson at the base, one of the freest of the " Charms "; Epoch, a brilliant scarlet flame with rosy tips; Jess, orange suffused with scarlet, a fine erect grower; Judith, rust red, an uncommon colour; Kenneth, a beautiful shade of pink; Marcella, a glowing rose with a golden base; The General, a distinct shade of madder crimson; and The Quest, crimson-scarlet with a yellow base.



A TYPICAL "CHARM" DAHLIA.

I have had the privilege of growing several of the novelties in advance and the new varieties that were offered last spring have had two season's tests in my garden. Most of these are great advances both in colour, type and habit. Three of the 1924 introductions stand out prominently. These are Charmer, Dennys and Amos. Charmer is one of the finest, if not the best " Charm " in cultivation. It fully deserves the award of merit which it received at the Wisley Trials last year. The predominating colour changes from orange-chestnut to orange-salmon overlaid on a rosy ground. It is impossible to give an accurate idea of the wonderful colour blend. The flowers are well formed, of great lasting qualities, and they are freely produced on erect, rigid stems. Dennys is a glowing orange-scarlet self. There is more scarlet in it than Trixie and it is quite a different colour. It is a nearer approach to vermilion. There is a beautiful gloss on the petals and a bunch of this variety is positively dazzling. It has a perfect habit and is very free flowering. Amos is rather larger than the ordinary type, but it is such a perfectly proportioned flower, and the brilliant crimson-scarlet colour is reminiscent of our best velvety-crimson roses. This is one of the most brilliant " Charms " we have. Three other 1924 introductions are almost as fine as the foregoing. These are Mac, Peach and Betty. Mac is an art shade of fawny salmon on a yellow ground. It is a bold, well formed flower and the blooms are held erect on good stems. It has a vigorous constitution and its perfect habit makes it a good subject for garden decoration, while there is no more pleasing colour for artificial light. Peach is a delicate rose on a lemon ground. The centre of the flower, where the lemon base is more pronounced, and the dainty wire edge of crimson on each petal give it a soft and beautiful effect. Betty is a silvery lavender-lilac. Last season it was particularly good in colour here, and although it is not a colour for lamp-light, it makes a good contrast in the garden, and it is quite distinct. Lillah, a deep pink with white tips on each petal, a perfectly formed flower, and Leonie, a light rosy pink with a yellow zone, are both attractive new shades.

I have tried all the best novelties of 1925, and there are some excellent additions among them. Emily is the best yellow " Charm " to date. It is a pure shade of primrose yellow with paler tips. It has a fine erect habit. Electron is a yellow ground overlaid with brilliant orange-crimson, the tips of the florets being suffused with violet. When the sun shines on this variety it seems to light up the flowers. It is so free that as many as fifty flowers can be counted on a plant at one time. Chameleon, as the name suggests, changes its colour from salmon-orange to rosy-orange and later paling to rosy buff tinged with orange. It is a fine flower of the " Charmer " type. Emma is the nearest approach to a white. Except that the base is slightly tinted with pale sulphur yellow it is virtually a self. Angelina is a brilliant shade of coppery orange toned with scarlet and orange crimson. It is a free-flowering variety of the " Picture " type. Kitty is a soft rosy pink with the centre of the petals slightly suffused with crimson. The base is chocolate-maroon. It has a free branching habit and is very useful for cutting, as the blooms will last for eight or nine days in subdued light. Lucina opens an apricot buff and changes to reddish salmon. It is a distinct and pleasing colour and is very pretty in artificial light. Mary is a brilliant maroon crimson, the darkest " Charm " yet raised. It is a fine colour and reliable in all other respects.

The blooms are at the right stage for cutting when the second row of disc florets are opening. For brilliant effects use orange scarlet, pure scarlet or crimson. Any of the pinks, more particularly those where the yellow or lemon zone is clearly defined, are suitable for table decoration. The cerise and salmon cerise shades are seen at their best when placed near the source of artificial light. Yellows may be seen in small proportion with the richer shades of pink. A mixed vase is quite pretty, but carefully arranged groups give the best effect. The flowers do not need foliage or grasses mixed among them. These rather spoil their beauty. The spikes should never be crowded. A dozen sprays will be quite sufficient for an ordinary vase. A rose bowl makes an admirable receptacle. There is no autumn flower more useful for decorative work than the " Charm " dahlia, by reason of their wealth and variety of colour.

NORMAN LAMBERT.

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EUCRYPHIA CORDIFOLIA

IN many gardens, even in localities particularly suitable for the less hardy shrubs, considerable difficulty is experienced in establishing this beautiful, but somewhat tender tree, or shrub. Stunted, leaderless plants are common, and this when the site has been well chosen and prepared. What is the reason? After examining many such plants, I am forced to the conclusion that very few ever get a fair start. Autumn planting, with wintry conditions following before the plant is established or protected is responsible for many failures. Planting unprepared plants, such as have been grown closely together in shaded houses, is another cause. Again, a plant may be pot bound and the roots inactive when it is planted, with the result that time is lost and growth commences too late in summer and is not matured before frosts occur. There is also the question of varying hardiness in individual plants. This would not affect those rooted from cuttings in the same degree, but seedlings vary considerably, some grow away with a distinct lead and very vigorous foliage, and are at three years old, 18ins. in height. The majority form neat, well branched little trees of 10ins. to 12 ins. Others, the dwarfs, grow slowly and only attain 6ins. in height in the time stated. Curiously enough the free-growing plants appear to be the hardiest. Loss of the leading shoot by frost may cause some plants to branch freely, but in most the difference in habit is due to seed variation. Such plants, where they succeed, will make beautiful shrubs no doubt, but never stately specimens. When the latter are desired, good plants, grown with as little check as possible, should be chosen.

In a mild season like the present the roots should be active and if it is intended to plant out into a permanent position in April, no time should be lost in giving a liberal increase in pot room. A mixture of two parts loam, half a part leaf-mould, half a part peat and a good sprinkling of sand, makes a suitable compost. Pot moderately firm and place in a cool house or pit, inure to outside conditions previous to planting out in the middle of April.

A somewhat sheltered but sunny place should be chosen. Soils which suit rhododendrons, well drained light loams, and those of a peaty nature appear most suitable. Double dig the ground, a space 6ft. each way is none too much, forking in leaf-mould and sandy peat if necessary. Examine the plant; vigorous roots should now be pushing through the new soil, be careful not to injure them or break the ball, plant and stake at once, making the soil firm below, leaving a good tilth on the surface.

In young plants, growth is rarely finished before November and the points are often browned and sometimes killed by frosts. The best method of protection is to mulch the ground over the roots with leaf-mould or even cinder ashes, and, using five or six bean sticks, make a "wigwam" over the plant, tying the tops of the sticks together some distance above it. Then cover all but one quarter, that on the sunny side, with a Russian mat. Arrange a flap, to be tied across the opening in severe weather. Protecting tender trees and shrubs is often of doubtful utility, but in this case it means all the difference between success and failure. When the stem has attained some solidity and is well protected by ample foliage, it is not so necessary.

J. COMBER.

A BEAUTIFUL FLOWERING SPRAY OF EUCRYPHIA CORDIFOLIA.

THE CULTIVATION OF THE VIOLET

THE humble violet with its sweet scent and lovely colour will always be welcome. This year violets have been very plentiful, and the sight of so many of these much-loved flowers must make some people wish that they were growing them in their own gardens. Those who contemplate doing so should begin now, and by next autumn they will reap the reward of their labours during the summer. Undersized and poor flowers can be produced practically anywhere and by the most incompetent gardener, but to get the very best a certain amount of care and understanding of the needs of the violet are essential. It takes skill to produce flowers during the dull dark days of winter, and also to keep up a succession of bloom from September to April.

First of all, the violet must have sunshine and air. The smoke-laden atmosphere of a town is fatal to them. Not only are the flowers meagre and scarce, but the leaves are few in number. Fog also is most injurious. Very often violets are planted in a shady position, whereas an open sunny situation where the crowns of the plants can be well ripened, is one which the violet loves. Slight shading during the very hottest part of the summer is helpful, but directly the days are cooler the violets should be fully exposed once again. Unfortunately, red spider is likely to be troublesome in a sunny position, but this difficulty can be overcome and should not hinder anyone from planting in an open situation.

Violets succeed better in some soils than in others, but on the whole they are not particular. A good medium loam is ideal, but other soils can be made suitable by the addition of manure or leaf-soil and by well working the land. A really heavy soil must be drained, as good fibrous roots are not made in a water-logged soil, and without them the plants are not healthy. Any material which will improve the physical condition, such as a good dressing of lime, should be added to a clay soil. Leaf-mould, cow manure or farmyard manure will improve sandy soils and help to keep the roots of plants in a light soil cool and moist during the summer. Violets do not in nature grow in a soil heavily charged with manure, but in a soil rich in humus. Large quantities of manure cause the flowers to be few and far between. Old mushroom manure

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or the remains of a hot-bed are excellent additions to the violet site.

To produce first-class violets, good stock is essential. Any grower, who has not up to the present been successful with his violets, should begin again with fresh stock. Those who are starting for the first time should purchase young rooted crown runners from a reliable grower who specialises in violets. A good beginning is half the battle.

Single, double and Parma violets are, with a few exceptions, treated in the same way. Annual propagation is the best method, and if possible fresh quarters should be given each year. Cuttings of single violets can be taken in spring and in the autumn, or the old plants may be pulled to pieces directly after flowering and replanted in prepared beds. A limited number of plants should be set aside for stock plants each year and allowed to develop runners. Vigorous outside cuttings with good roots from the best plants should be selected. When all the cuttings are gathered together they should be prepared before planting by removing any inferior leaves and cutting off the runners. After this they should be planted with a trowel in well dug beds manured the previous autumn, placing them 14–16ins. apart each way for the singles and 12ins. for the doubles. It is very important that the cuttings should be planted *firmly*, but the crown must not be buried. When the young plants are given a pull they should not come out of the soil. To ensure firm planting, the ground should not be spongy to start with. Rolling with a wooden roller or treading consolidates the soil.

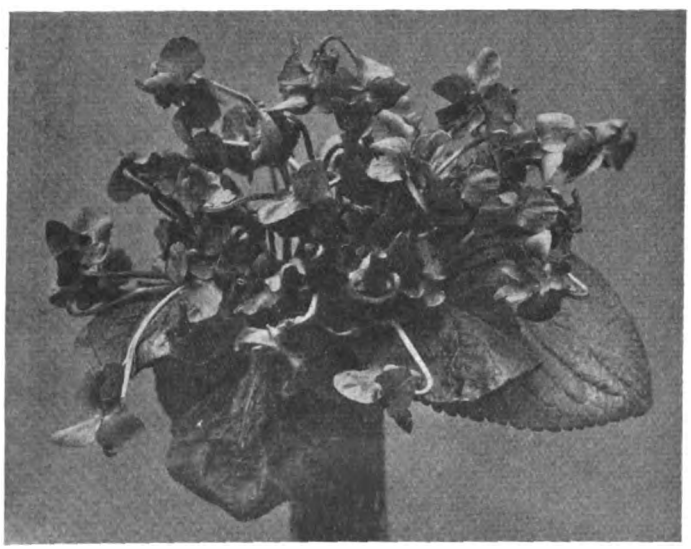
Parma violets are usually propagated by division of the old plants in spring as soon as flowering is over, and strong outside crowns only should be used. About 10ins. apart in the beds is sufficient distance for planting the Parma violet. Runners can be taken off in March and inserted in boxes and placed in a cold frame. These should be kept growing well, and in six or eight weeks' time they will have formed good plants for planting outside. In all cases it is advisable to plant the violets as soon as possible, as they are then able to withstand drought more easily during the summer. Until they are established no attention need be given; but, after that, weeding, hoeing and watering must be done regularly. All through the summer the runners should be nipped off so that strong individual flowering clumps will have formed by the autumn. Autumn-struck cuttings sometimes root more easily, as there are no drying winds then. A few plants can be allowed to develop runners; these will provide cuttings for striking in the autumn in frames. Liberal supplies of water should be given in dry weather, and the plants must be syringed frequently to keep down red spider, and if this pest attacks the plants, syringe with paraffin emulsion. Every fortnight a weak dose of liquid manure should be given. In this way fine clumps will be formed.

There are two seasons of flowering, from September until the nights are frosty, and then again during February and March. To obtain bloom from November to January some means of protection is necessary. Portable frames can be placed over the rows, but moving the plants into frames where they can get as much warmth as possible is the better method. This protection during the winter does away with the chances of damage by rain. At the beginning of September the Parma violets are lifted and at the end of the month or early in October the singles. If there are any flower-buds showing at this time, they should be picked off. The frames should be well drained and contain a fairly rich compost, and the ground should be made firm before planting. A frame in which cucumbers have been grown is quite suitable for violets during the winter. The day before lifting soak the violets well. Take up with a large ball of soil, remove all dead leaves, and plant firmly in the frames and near the glass. The plants should be 12ins. apart and the crown must not be below the soil. Water immediately and place the lights on for the first fourteen days. During these first days some ventilation and shading should be given to prevent the leaves from flagging. When the violets have become established, remove the lights and do not replace until the nights turn cold, and even then a little air should be given at night and plenty during the day. In frosty weather cover the lights with mats at night as a means of protection.

Throughout the winter all decayed leaves should be picked off and the soil stirred with a hand fork every fortnight. Violets will need very little water during the dead months, and great care must be taken that they do not suffer from damp. If damp does get in, sprinkle a mixture of powdered lime and charcoal round the plants and in the crown. Ventilate whenever possible, especially as spring advances.

There are a number of good varieties of violets, and to keep up a succession of bloom several kinds should be grown. Undoubtedly the best all-round variety for outside or for frame culture is Princess of Wales. Admiral Avellan is a good deep amethyst variety. Mrs. Lloyd George has dark violet flowers with a coloured rosette in the middle of each. Baroness de Rothschild has a particularly large purplish violet flower. Cœur d'Alsace is grown because of its pinkish red flowers, which are so different from the usual violet colour. The flowers are not large, but they are sweetly scented and continuous blooming. White Czar is the best white violet, it has small well shaped flowers. All the above varieties are singles.

The well known varieties of Parma violets are still the best. Marie Louise has a beautiful deep blue flower with a streak of red in the centre. Duchesse de Parma, although a rather pale blue, is worth growing owing to its sweet fragrance. Mrs. J. J. Astor is a large-flowered dark amethyst variety; and Mrs. Arthur is dark blue with a white centre. Comte de Brazza is an excellent white Parma violet and is very fragrant.



A GOOD VARIETY FOR OUTSIDE CULTURE, PRINCESS OF WALES.

MARIE LOUISE, WITH BEAUTIFUL DEEP BLUE FLOWERS.

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HOW TO MAKE A PRIVATE GARDEN PAY

IT IS THE AIM OF THE MAJORITY OF GARDENERS AND OWNERS OF GARDENS TO MAKE THE GARDEN AS PROFITABLE AS POSSIBLE WHILE RETAINING ITS BEAUTY AND GRACE. IN THIS, AND THE FOLLOWING ARTICLES, THE WRITER SUGGESTS CERTAIN CROPS WHICH MAY BE TRIED WITH A VIEW TO MAKING THE PRIVATE GARDEN A PAYING PROPOSITION.

IN these days of depreciated investments and tight money generally, many owners of large and medium sized estates are directing their attention to the commercial possibilities of utilising surplus garden produce.

In many country places I know of, gardeners are chosen for their commercial as well as technical training, and through them very useful alterations have been made by diverting establishment charges into profitable channels, and, in addition to supplying the owner with all his requirements, the gardens have been made to pay their own way.

Let me say at once that no acts of vandalism are necessary; there is not the slightest need to destroy the beauty of any garden by making it pay. Some re-arrangement will be needed in the nature of the crops, cultural treatment will differ too, somewhat, since medium-sized fruit, flowers or vegetables will be the aim rather than a few exhibition specimens.

It is possible to some extent to mix the purely ornamental with the prosaic commercial sections, more especially with flowers; but forced salads and vegetables, as well as outdoor fruit crops, must be segregated from the domestic sections, for they will pay well for the extra attention afforded. Correct successions must be maintained, for the essence of good marketing is to secure and maintain a market reputation, and this can only be successfully accomplished by maintaining a continuity of supply of high-grade goods.

The adoption of my suggestions may mean the elimination of unprofitable varieties, especially in fruit and flowers, substituting other kinds just as beautiful but possessed of a definite market value. The intensive and continuous use of hot-beds, heated frames and greenhouses, together with the right use of all by-products, will be involved.

I propose to deal with the main sections individually and from a commercial standpoint, but the amateur may safely follow in practice the cultural instructions given. He will differ only in that he may wish to add types and varieties which would ordinarily have no place in a commercially conducted garden.

Before I go into cultural details, I would like to warn my readers against trying to compete with the commercial grower of the commoner necessities, such as potatoes, cabbages and the like. The aim should be to take very full advantage of sheltered positions, soil, and the general intensive conditions of the private garden.

GROW CHOICE THINGS OUT OF SEASON.

Tackle that which, by the very nature of things, the grower in a large way cannot. Forced strawberries, asparagus, seakale, mushrooms, beans, mint, lettuce and new potatoes are all in very great demand on the market, and are extremely profitable. I have, from quite a tiny cucumber house, sent

DAFFODILS READY FOR PACKING FOR MARKET.
Note how this is carried out with all the heads at one end.

large quantities of forced mint to Covent Garden in February, March and April, and have received from 12s. to 15s. per dozen bunches—and remember that mint can be cut four times, given correct treatment. Ten shillings per pound for forced beans is not at all an unusual figure, and I have made more during a shortage of French sendings. New potatoes at from 2s. 6d. to 3s. per pound show a good profit, with not a very large or exorbitant outlay. Careful attention to detail and an intelligent appreciation of the market fluctuations are all that is necessary, all other things being equal. I shall endeavour to make the articles as topical as possible, so that those intending to try may do so at once. The first subject to be dealt with is bulbs and flowers. If, as we go along, difficulties crop up or something is not quite clear, I should like to know, so that all readers may benefit by the reply. More useful information is acquired through intelligent discussion and constructive criticism than in almost any other way. Further, each district, and almost each garden, has its own special problems of which I cannot be cognisant when writing in general terms. I shall welcome these particular problems, for principles may always be applied and adjusted to local conditions in gardening as much as anything; the rule of thumb means stagnation and horticultural mediocrity.

PLANTING OUT MINT CUTTINGS IN PREPARED BEDS.

BULBS AND FLOWERS.

Of all the forms of commercial horticulture, this is, I think, the most profitable and interesting. There is always a steady demand for British bloom right up to the end of March and April, and the keen gardener will see that a succession of flowers is maintained right through the season, commencing from Christmas. For the purposes of this article, I am assuming that no bulbs are being bought in specifically for forcing, and will deal

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with the subject right from the commencement when the bulbs are being planted, up to the time the flowers are ready for market.

Preparations have to be made a year ahead, and the bulbs for forcing in the winter of 1925 are now planted and growing. To commence operations it is necessary either to buy or lift a stock of "mother" bulbs during the month of July or August. Most gardeners know what a "mother" bulb is. Commercially it is one which has been planted down for three years and has developed from a single "offset" to a group of tightly packed small bulbs. It is the large flat-sided offsets which are planted down for forcing. After the main beds of bulbs have been lifted, they are left on the surface of the ground to dry and ripen. When first lifted, the offsets are very tightly fixed to the parent bulb, and it would cause great injury to divide them at this time. A few days' drying causes them partially to break away, and a little hand assistance then is all that is necessary. They must never be forcibly removed, or irreparable injury will be caused to the root plate. When all the bulbs have been graded, there will be found four sizes and types, no matter what variety of bulb is being treated. First come the parent bulbs from which the offsets have been removed, then the large offsets, then more a little smaller, and finally tiny little bulbils. The last may be thrown away, or planted in some woodland place, for they will take many years to mature into flowering bulbs. All the others must be planted into raised beds in their separate grades. The beds are very like asparagus beds, and about 6ft. wide. This is to allow flower picking from each side of the bed without stepping on it. The parent bulbs will flower in the season following planting, and at the same time grow into round bulbs fit for forcing or planting down for three years for stock purposes. The large offset may flower, but, at the same time, will become round and suitable for forcing in the following year. The smaller offsets must be planted a little deeper—about 5ins.—and remain for two years before being fit to lift again. So it will be seen that the life history of a bulb involves three years; but as soon as established, all is plain sailing. From the commercial point of view, the beauty of bulb and flower growing is that all the time revenue is coming in in the form of flowers, one's capital in the form of bulbs is steadily appreciating. During the months of August and September the round bulbs will be boxed or potted ready for forcing, and then should be plunged either in beds of fine soil or ashes until the time comes to bring them into heated greenhouses. This time should be determined only by the condition of the bulbs and not by the time of the year. I have seen more failures in forcing through bringing in the boxes prematurely than through any other cause. The flower should just be emerging through the neck of the bulb before heat is applied, and then it will stand any reasonable amount. If brought under glass too soon, then the foliage takes the lead and maintains it throughout, while the flower becomes stunted and deformed and quite useless for market. It will be found that all the polyanthus narcissi, such as, for example, Soleil d'Or, will stand much more heat than will the Ajax or trumpet kinds. Here we may leave them until the flower spikes are well up in the sheaths and the head of the bloom is just "crooking" over and the petals commencing to open. It is at this stage that the difference as between commercial and private work is obvious. The flowers must be picked now, if it is intended to market them, for they will have to undergo a period of development under cool conditions so that they may "harden" and have their natural colour intensified. While still green, therefore, and long before they are fully opened, bloom should be picked, in the early morning, and taken at once to a cool, *sunny* and light place and be placed in water tied up in bunches of two or three dozens, *loosely* tied up in bunches of three to four dozens. All having been picked, they should be taken out and put in either in a cool sunny glass house or shed. They must, of course, be put in water.

After a twelve hours' drink a remarkable change will have taken place. The blooms will have partially opened, and will be firm and a little on the green side. It is at this stage that the grower should market the bloom, and in no case when it is fully developed. It should be remembered that it has to travel to the market, be exposed for sale, it may then have to go on another long journey to some provincial town, and the retailer then has to keep it for a day or two in his shop. *The flowers should not be fully developed even when they reach the retailer*, for he has to consider the consumer, naturally, and will invariably pay a higher price for that which will last longest.

Exactly the same procedure is followed with the outdoor bloom, with the exception that the buds should be a little more developed before being picked.

MARKETING THE FLOWERS.

Flowers grown in a private garden should be a much better grade than the ordinary commercially grown bloom, and this being so, Covent Garden Market will form the best outlet for them. Higher prices are paid in this market for high-grade material than any other market in the world. After the flowers have been tied up in bunches of one dozen blooms, they should be packed in non-returnable wooden boxes which any salesman will supply. According to the variety of flower, the number of bunches in a box will vary. The packer should not be afraid of packing the bloom firmly; far more harm is done by loose packing than otherwise. With most of the trumpet varieties of daffodils it will be found that two layers of a dozen bunches in a layer will be quite satisfactory. The heads of the bunches should all be packed at one end of the box, in order to display the length of stem, and a light wood "cleet" should be firmly wedged over the stems to keep them rigid in transit.

Before packing, the stems should be quite dry, and this will necessitate taking the bunches out of water at least two hours before packing, and standing them upright on a draining board. Pack early in the morning of the day of despatch and advise the salesman the night before of the quantity and variety of your consignment. Better prices are always obtainable when the salesman knows what to expect, and after he gets to know your "mark" (as it is called on the market) your sendings may be sold at the very highest market prices before they have arrived. Such is the value of a good market reputation. Here are some of the best commercial varieties of daffodils and narcissi to grow. There are many hundreds of other varieties, and some are much more beautiful than those given, but, as they are not well known on the market, it is too much of a gamble to recommend them.

COMMERCIAL VARIETIES OF BULBS TO GROW.

The amateur in flower growing is very apt to want to indulge in too many varieties, with the result that he has a great number of small consignments which are anathema to the salesman. It is far better to have larger quantities of fewer kinds. Remember that each variety should be sent in dozens of bunches, or multiples of a dozen. Odd bunches are a nuisance and cause endless trouble in the sales returns. Here, then, is a short list with which the beginner might make a good start by obtaining, say, 2cwt. of each variety. They would, of course, be purchased at wholesale rates and "as lifted," which means that all the offsets, "mother" bulbs and so on will be included, and will be graded out before planting by the purchaser.

SOLEIL D'OR.—Good for warm climates, such as Guernsey, Scilly or Cornwall. Very good forcer.

GOLDEN SPUR.—The best commercial daffodil. First-class forcer.

PRINCEPS.—A good bicolor daffodil and a good forcer.

EMPEROR.—A well known market variety and will force.

EMPRESS.—Ditto (bicolor).

BICOLOR VICTORIA.—Ditto (bicolor).

KING ALFRED.—First-class market variety. Forces well. Large daffodil.

BARRII CONSPICUUS.—Heavy cropper. Will not force.

POETICUS ORNATUS.—Best known commercial narcissus. Fine forcer.

HORACE.—Beautiful flower—makes good money always. Bad forcer.

SIR WATKIN.—Good commercial daffodil. Always in demand. Forcer.

FRANK MILES.—A sturdy Incomparabilis type, will not force well.

LUCIFER.—Ditto.

C. J. BACKHOUSE.—Ditto.

RECURVUS.—Useful for Easter work, and very hardy. Good forcer.

DOUBLE WHITE.—A late Easter flower, and therefore very valuable where it will do.

In my next article I shall deal with glass house work from the viewpoint of growing commercially profitable crops.

SIDNEY P. WELLS.

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FLOWERS BY THE SEA

THERE are numerous owners of villas with small gardens near the sea which are only used for week-ends and during a few months in the summer, and where, perhaps, the services of a jobbing gardener are only employed occasionally to tidy up. During most of the year the plants in the beds and borders have practically to take care of themselves.

My idea in writing these notes is to recommend a few varieties of hardy plants which, with very little attention, will make a good show during the summer and early autumn.

It is as well to remember that soil near the sea is generally of a sandy and "hungry" nature and dries out very quickly; consequently, the ground must be well prepared if the plants are to be successfully grown. Before planting, trench the soil at least 2ft. deep, and work in plenty of good rotten manure.

The chief drawbacks to being near the sea are the strong winds which are experienced at all times of the year, and more especially during the early spring months. Therefore, unless the garden is situated in a sheltered position, it is useless to plant tall-growing varieties. Speaking from my own experience, those I recommend do really well and, if properly planted in the first instance, will afterwards take care of themselves and not require to be shifted for at least two or three years.

When planting a border of hardy flowers it is as well to allow plenty of space between the plants. Perennials such as Canterbury bells and sweet williams, which only flower one year, may be dotted in between, and bulbs such as gladioli and Hyacinthus candicans may also be planted in the spring. Some of the favourite annuals, such as mignonette, cornflower and larkspurs, should be sown. These look gay during the summer and are very little trouble.

Three flowering shrubs which do well are Forsythia Fortunei, with drooping yellow flowers freely produced during April. Olearia macrodonta, a distinct shrub with cut silvery leaves and sweetly scented white flowers, and Spiræa Anthony Waterer, a compact shrub with large heads of bright crimson flowers.

The following hardy plants are a few I recommend, although, of course, there are many others:

Achillea Perry's White.

Aquilegia.—Long-spurred hybrids.

Michaelmas Daisies (Asters).—Ideal (pale lavender), Delight (white), Lil Fardell (silvery rose).

Campanula persicifolia. C. p. alba.

Gaillardia.—Lady Rolleston, The King

Geum.—Mrs. Bradshaw, Mr. John Bradshaw.

Gypsophila paniculata flore plena.

Helenium.—Riverton Gem.

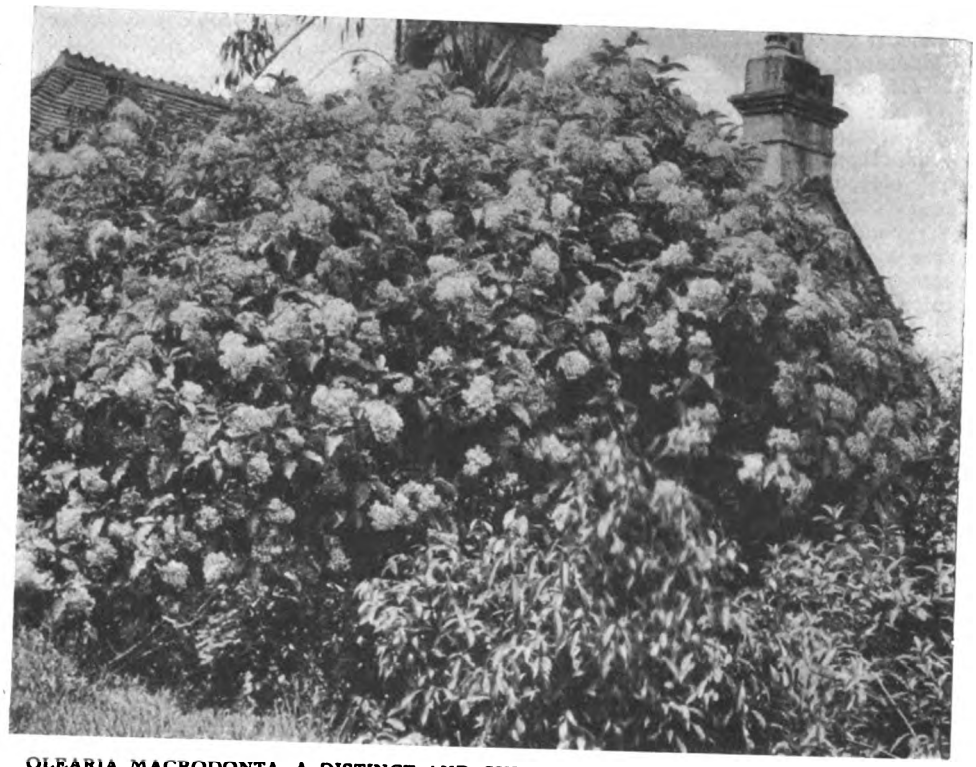
Iberis gibraltarica (very suitable for edging).

Iris.—Amas, Aurea, Caprice, Cordelia, Gagus, Kitty Reuthe.

Nepeta Mussini (catmint).

Peony.—Mme. Eugêne Verdier, Albert Crousse.

Phlox.—Elizabeth Campbell (a lovely salmon-pink), Regulus.



OLEARIA MACRODONTA, A DISTINCT AND SUITABLE SHRUB FOR SEASIDE GARDENS.

Chrysanthemum maximum.—Mayfield Giant, Mrs. C. Lothian Bell.

Erigeron.—B. Ladhams.

Scabiosa caucasica.

The tallest of the above varieties only grows to a height of 3½ft. A. G.

VEGETABLES THAT ARE FLOWERS

WHEN your friends have finished showing you over the flower garden they are apt to say, "I don't expect you'd care to see the kitchen garden," but I always say, "You've seen the flowers, but now you *must* see my vegetables."

The difference between vegetables and flowers is not intrinsic in their nature, but one of the curious arbitrary classifications that man forces upon mere things. Flowers are plants which we cultivate for their beauty alone, while vegetables are plants which produce something edible: for example, the root of the parsnip, the bottom of the stem of onions, the top of the stem of asparagus, the buds of Brussels sprouts, the leaf stalk of celery, the leaves of spinach, the flowers of the globe artichoke, the fruit of the tomato, the seeds of caraway. By adding all these parts a composite, but complete, plant could be produced. Into this wooden scheme there is no consideration of any other factor than utility. That vegetables should be regarded as flowers because of their beauty appears to some minds an upsetting of the laws of seemliness.

It is a curious lack of balance in many people that they put beauty in one place and utility in another; this is an entirely modern conception, but there are a few exceptions; nobody seems to deny that a calf is delightful because it produces veal, or a baby chick any the less fluffy and lovable because it may grow into a boiling fowl or lay an egg. Those who think that beauty and utility are enemies should all be sent to the Tower, not to be beheaded, or even imprisoned, but to see the fine designs that are on cannon, coat of mail, halberd, strong boxes and many other objects which were clearly made for use.

A field of cabbages may be ugly, a field of cabbage stalks is undoubtedly an eyesore, but individually each cabbage is a huge green Victorian posy, and I am sorry that I am not big enough to put one in my buttonhole. In remote country gardens there are still flowers called "cabbage roses." With a little wise planning the gardener never need go into the garden and find it without its "cabbage posy." Cabbage is most attractive when the dew is still on it, for it is a plant that flags sadly in a dry warm atmosphere; so to see this flower at its best you must, in summertime, be up early.

What variety there is between January and December! The curly green kale of the early year has the grace and variegated outline of a fern, and during the grey winter days its vivid green is as gay as any red rose in June. Spring cabbage

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is attractive because of the smoothness of its leaves, the inner ones having a texture like fine green satin. Purple sprouting broccoli is a kind of solid gypsophila, suitable for cold weather; it has lovely rich colours and its crisp and succulent stems are covered with a delicate lavender down. The bloom is as fine as that on a bunch of grapes and has the advantage that its beauty is within the reach of anyone who has a piece of garden.

One kind of cabbage posy succeeds another, and after some months we find the cream-coloured cauliflower, which some far-away, wise human being did dare to call a flower; its creamy white is set in a frame of green, rather like a mass of whipped cream in a green bowl.

The Old Year ends and the New Year begins with Brussels sprouts, little heads of fat men and women who have been caught by some witch and fastened to a stalk for their sins of over-indulgence, for how could they be so fat unless they had over-indulged? To make their punishment complete they are set out in a frozen garden, are bent over by snow and made to glisten by hoar frost. But in spite of their presumed discomforts, the little, fat, green men and women continue to grin and be jolly.

Nor must cabbages be forgotten in autumn, when frost and sun paint the outer leaves with red, orange and purple. Then mists keep a fine dew all day long on the reddened leaves and even the laziest gardener can see the posy cabbage at its best.

Next you must see the rows of waving plume-like carrots, fine and feathery from the first moment in which they so miraculously push their way through the hard brown soil until the first autumn frosts turn them into yellow-red. All the summer they have been like plants growing under the sea. I thought I looked down through blue-green water and saw the fine leaflets tossed here and there by the movements of the waves, but when autumn has begoldened the leaves they cease to be sea flowers that the mermaids pick and fix in their tresses, and become solid plants that live in solid earth. When the sun-coloured carrots are pulled out of the brown earth to serve as human fodder, it seems a pity that the fine green leaves, the lovely fine bunch of feathers that each carrot wears on top of his head, should have to be cut off and thrown away. Carrots are all men, but they bring a touch of femininity, or perhaps it is savagery, into their lives by their gay and delicate headdress.

Come down the walk that has a border of parsley, fine big plants of parsley which from their childhood have had plenty of space to grow in. Here is a notice in gardener's language that the missus is not bullied on this estate. Well grown parsley has a greenness that suggests intense gaiety; it outdoes the grass and promises an infinite succession of springs. If only it would never go to seed. The plant spreads out like a great green rosette, pale at the centre, deep green at the edge, each leaf placed exactly in the right place by a master designer. The mossiness of the newer parsleys is so soft and so rich that it does not seem quite at home out of doors. The plant seems to make an insistent demand that a leaf from the perfect rosette should be plucked to deck a piece of cream cheese, an anchovy sandwich or slices of smoked salmon. When properly dried on a sunny windy day it preserves its greenness and perkiness to the end.

Over there are the lettuces. To-day I cannot look at the cos: they are not flowers, but prim, hard-hearted spinsters who look as if they were trying to save their souls and be respectable. They can't even be of any use unless they are policed into their duty by being tied up! But the wonderful cabbage lettuce was invented by some wise labourer to make his garden lovely. Each leaf is a solidified wave of the sea, the outer green, the inner almost white; they stretch up into the air and curl about one another. Each lettuce is a lovely flower filled with secrets. The curling leaves embrace each other tightly in the cool, fragrant chambers where they dwell. But they will be spoilt if you let these lovely flowers grow into seeding vegetables.

How different is the asparagus bed. In its youth it is just a patch of delectable vegetables, rather desolate and unattractive looking, but when it has ceased to be useful it becomes a garden for the little woodland men and women who leave the gaily-coloured but rather solid flower beds to dance here under the fine leaves. The tiniest wind bends these plants; if we had better hearing perhaps we should discover that a thin sweet music sounded up and down this green bed.

It seems a little incongruous that such a delicate growth with its tiny flowers should produce a conspicuous, flaunting red berry. Perhaps the berries are compliments to the full-coloured summer sun, little lanterns that the woodland people hang up as offerings to the god of summer.

Beyond the asparagus we reach the sea kale bed, where palmate leaves grow cheerfully out of a bed of cinders. This is an exotic-looking plant and gives the garden a new colour, a misty greenish grey. The little curls and contortions of the edge are a combination of the laughs and grimaces which the leaf makes at each passer-by. It laughs because it does so well in spite of its cinder bed and its home away here in the damp and cold, and it also makes a grimace at you for having brought it to the north and made it a prisoner. It is bold because it is related to the pirates and buccaneers who sailed for so many centuries along the coasts of the Mediterranean. How plant and pirate are related cannot be known for certain, but probably a lazy pirate was turned into a sea kale, just as Adonis was changed into a flower and Arachne into a spider.

Another sea plant that has made a home with us is the rich red beetroot. Call them by some other name and we'd pick the leaves to put in vases in the house and plant them in the gaily coloured formal beds of big gardens and parks. The lovely leaves have a way of changing with the weather and the amount of moisture in the air, and become green, purple, red, grey, but they are always rich and beautiful. The modelling of the leaves is fine and the texture smooth and satiny.

It is a pity that potatoes do not blossom more frequently, as the purple or white flowers are very *chic* and attractive. Potato leaves are only nice after they have been sprayed with the blue-green disease killer, so it is the lady's "make-up" and not the lady herself who is admired. The potato itself is such a rough-looking customer that the dainty flower it bears seems hardly to belong to it. It is like an Apache passing off a lovely stolen child as its own. The prettiest part of the potato flower is the little beak of golden stamens which protrude out of the circle of white or purple petals.

For the last I'll save the best and most beautiful plant, the green or globe artichoke, which is grown so little but which might be cultivated in almost every garden in the southern and central counties. Its leaves are familiar to all in the acanthus decoration which we copied from the Greeks and which we know so well on the capitals of churches, theatres and town halls. It is a leaf that does not require modification, for it is perfect both in nature and in art. The down which is so abundant on the young leaves and the stalks gives it a soft appearance, but the beauty here is not texture or colour, but line.

Soon after the woolly frond has made its way into the air, its tip begins to bend earthwards; at first the curve is slight, but with increase of size the curve grows stronger and finally the tip may touch the ground, but in the whole progress from upright frond to procumbent leaf the curve is always fine, noble and alluring. The edge of the leaf is cut irregularly, but the cuts are not fussy like those of the sea kale or gauche like those of the dandelion. The cuts are clear, decisive, strong. At first the two sides of the leaf are close together, but as they grow they separate a little, then gradually open wide, each side making a fine curve outwards from the mid-rib. There is a great satisfaction in this leaf—a noble curve from base to tip and two graceful curves from midrib to edge, and the leaf is large enough to give a feeling of opulence in beauty. Nature in this plant does not give a tiny peep at loveliness as in a solitary pasque flower on the Downs, the sparse milkwort on an upland pasture, a tiny heartsease springing out of a hard baked field; but here are riches spread abundantly.

Inch by inch the stalk grows until it has reached five, six, seven feet, and as it ascends it sends off branches which bear the buds, cup-shaped like a thistle but without such unfriendly prickles. The green scale leaves, often tipped with purple, hold at their base that tiny morsel of food so delicious to the lover of artichokes and in the heart of the cup is hidden away the delectable *fond d'artichant*. If the garden is lucky enough to have a little rising ground, that is where the artichoke must grow for the sake of seeing its billowing leaves and curved cups undulating against the sky.

It has taken a year to see the vegetables; a year sounds so long, but it is only a very little piece out of Time. Rest just a moment and then we can start again.

O. A. MERRITT HAWKES.

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POTATO GROWING AND INCOME TAX

BY A LAWYER.

GROWERS AND MERCHANTS.

A SOMEWHAT unusual question, of much importance in relation to the assessment of income tax of potato growers and merchants has lately been the subject of the close consideration of the High Court. The facts were quite simple. A firm of wholesale potato growers and merchants hired land under certain special conditions for the purpose of growing potatoes. They were in possession of the land in some cases for more than a year, and in other cases for less than a year, and the actual land used by them was changed each season. Their landlords, who were local farmers, did the ploughing and carting and provided the horse labour required, and the landlords were paid an agreed rate for rent and another sum, at so much per acre, for the provision of the necessary horse labour, etc., the amount paid being inclusive of all rates and taxes. The landlords were, however, assessed to income tax, Schedule "B" for the land, and not the potato merchants. The latter sold the potatoes grown by them under this arrangement and were assessed to Schedule "D," in London, where they carried on their business as potato salesmen, in respect of the profits which they got from this business in potatoes. The Inspector of Taxes contended that this was a profit which arose from the growing and sale of the potatoes, and not a profit arising from the occupation of the land.

OCCUPATION OF THE LAND.

The real point for the Court, therefore, was whether, under their agreement, these potato growers and merchants were, in fact, in occupation of the land in question. Under their agreement they were to have possession of the land until the potatoes were fully ripe and in fit condition to be stored in pits, and, in addition, they were entitled to certain rights of possession for the purpose of pitting their seed and storing their crops in pits until such time as the crop was sold and removed in the ordinary course of trade. The potato growers provided so much artificial potato manure to the acre, and the manual labour, except as previously mentioned. It was found, upon the facts, that the whole year and the whole value of the soil to grow anything was devoted to potatoes.

"USE" OF THE LAND.

What, therefore, was the use of the land for the particular year? The landlords, who, as stated, were farmers, let the potato growers the land as their tenants, and gave them possession of the land for their purposes. That being so the Court came to the conclusion that the growing of these potatoes was the only profit there was in the land. The Court also accepted the view that if the ordinary farmer grew potatoes, and took them, say, to London and sold them there, he would not be treated as commencing a new business from the time he took his crops from his farm on the way to market, although different considerations might apply to a farmer carrying on a butcher's shop, or anything of that sort. The fact, therefore, that these potato growers were also wholesale potato merchants and salesmen did not make them liable to be assessed to income tax under Schedule "D" in respect of the profits made by growing potatoes on the basis that this was subordinate to their business of potato merchants and salesmen. They were rightly assessable under Schedule "B" in respect of the occupation of land, and not their landlords, the farmers, although the latter were, in fact, the rated occupiers.

A NEW POINT.

It would not appear that any previous cases were of much assistance in settling the question involved, the decision in which is of great importance to those interested, for it would seem that a large profit had been obtained, making a great deal of difference if the assessment had been maintained under Schedule "D" instead of Schedule "B." The whole subject opens up a wide question for people who rent land for similar purposes and can justify their right to being assessed under "B," as occupiers of the land, under a working arrangement of this kind with the farmers from whom they rent, rather than being driven to be assessed under "D" on the profits of their businesses. It is true that in a bad year, with a loss in trading, they might be better off if assessed under "D"; but with a very considerable profit, as in the present case, there can be no question of the great advantage which is secured by an assessment under "B" in this kind of undertaking. The judgment has now been confirmed by the Court of Appeal.

THE AMATEUR FLOWER SHOW

(*Continued from page* 193.)

I AM glad to see flowering shrubs encouraged by giving them the next two classes, 14 and 15.

Many of the best kinds will have finished blooming, but where good collections are grown there should not be much difficulty in finding six or twelve varieties, and kinds may not be impossible. As no mention is made of hardiness we shall probably find some choice subjects from the climatically favoured parts of the country. The weather will play a part in the "timing" of certain species.

Watering will be almost certain to assist flower development and will be especially valuable shortly before the show.

The next group, cut flowers of herbaceous plants, will strongly appeal. A star indicates that bulbous and rhizomatous plants may be included. This will admit some of the choice lilums and irises.

Bulbs are readily obtainable now and no time must be lost in potting, if wanted. A frame will be suitable for them till growth is active, when a greenhouse would be best. Shade from strong sunshine is essential, also manure waterings when well rooted and green fly must be guarded against. It is doubtful whether any of the June-flowering irises will be left, but the lovely I. Kæmpferi should be in season. It is not too late to plant strong roots now in good rich soil, and when growth commences an abundance of water will be imperative to success.

The main point in most cases will be surface working of the soil, mulching, watering, thinning and staking where necessary.

Classes 18 and 19 are for pot plants grown under glass.

There is also a separate class for foliage plants only, but in the above classes both flowering and foliage plants are eligible.

There are separate classes for begonias, gloxinias, carnations and mimulus, but that does not, of course, exclude them from these classes.

Class 20 is for hardy annuals.

It is permissible to sow seed under glass. This should be a popular class. Sweet peas, clarkia, godetia, Lavatera, Sweet Sultan, lupins, cornflower and nigella are a few of the best kinds. Sweet peas have already been dealt with. The others can all be easily grown by sowing outside, though the difficulty of catching the soil just right for sowing, and the slug trouble, occasionally renders it desirable to sow inside. For this purpose a frame will do as well or better than a greenhouse.

Sowing outside is best done in a bed specially prepared in mid-April. At one time it was thought sufficient merely to scratch over the surface of the soil before sowing and to sow the seed thickly. Beautiful annuals deserve better treatment and the soil should be as well prepared as for other plants.

Thinning early, according to the possible size of the plants, staking and watering will constitute the essential attention necessary.

Orchids take the next two classes and the first will probably attract exhibitors who have noted collections.

The class for six plants will give the amateur who makes a hobby of orchids a chance to gain a coveted prize with his favourites. Such men are exceedingly keen and some good plants will certainly be seen.

Strong healthy plants are necessary to produce show spikes and blooms. Shade from strong sun, ample moisture to the roots and in the air, with judicious ventilation will do the rest.

Classes 23 and 24 are for carnations grown under glass.

These can, of course, be either perpetual-flowering, malmaison or border types. Perpetuals are almost exclusively grown now under glass. Plants which have been blooming since last September are not likely to supply the show flowers.

These will probably come from plants which were struck from cuttings inserted late last spring. Such plants, if pinched to make good

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specimens, would begin to flower early this year and would continue well past the show date; strong layers rooted last August or September would also provide blooms at the right time. Such plants would have been kept in small pots till January or February and then potted into 5in. or 6in. pots and grown on under favourable conditions of temperature, ventilation, etc.

Cool conditions and partial shade from strong sun will be necessary from May onwards. Red spider, always liable to give trouble, must be kept at bay, and watering must never be neglected. Frequent weak doses of liquid manure water and soot and a little guano will add strength to spikes and substance to blooms. Amateurs who find any difficulty with the perpetual carnation should grow the border varieties. Layers rooted last August should be potted immediately, one plant in a 5in. pot or three in a 6in. Pot firmly, using a compost of good fibrous loam with a small portion of decayed manure and wood ash, and a sprinkling of soot and bone meal. If grown in a cool greenhouse, and proper attention paid to watering and disbudding, there would be every hope of obtaining good blooms at the right date.

Hardy pinks are allotted the next two classes. These are charming garden subjects and varieties are obtainable in fancy, self or laced forms, in addition to the Allwoodii group.

Pinks revel in sunshine and, like their relatives the carnations, prefer a loamy soil to any other, to which has been added lime and potash, the latter, preferably, in the form of burnt wood ash. Young plants set out this spring or last autumn, or older ones, should supply plenty of flowers at the right time.

Slugs are frequently troublesome and must be prevented from damaging the foliage. Liquid manure watering in May and June will be nelpfu!

Class 27 is for foliage plants in pots. There are numbers of fairly easily grown plants for this class. Choice, highly coloured kinds requiring stove treatment are not much grown now. The green foliaged kinds must be well shaded from sun and syringed freely, except some ferns.

Many highly coloured foliage plants require sun to bring out their richest colour, but Rex begonias and caladiums are exceptions and must be shaded.

Ferns take the next two classes. Except by a few specialists ferns are not grown nearly as much as they deserve. One of the most delightful exhibits at last year's Chelsea Show was one of ferns. The best time to examine ferns for potting or top-dressing is early spring. After this is done they delight in a shady, moist atmosphere with a fair heat until growth is completed. Clay's fertiliser is an excellent stimulant.

Classes 30 and 31 are for violas or pansies.

These are very popular and deservedly so. Cuttings struck last September in a cold frame will make ideal plants for providing blooms at the end of June. Older plants of violas may also be divided and planted now.

Partial shade from strong sun is desirable. All blooms should be removed till plants are growing freely, and after that, faded flowers regularly. Copious waterings will be essential if the weather be dry in June. In addition to an occasional weak liquid manure watering, two waterings, the first the last week in May and another ten days later, may be given by dissolving a ½ oz. sulphate of ammonia and ½ oz. superphosphate in two gallons of water.

Flowers should be thinned to one or two to each shoot. A rich soil must be prepared for the plants to be grown in pans, using equal parts loam, leaf-soil and manure, with a little bone meal and lime rubble. Strong young plants from last year's cuttings should be used, placing three in an 8in. pan. Grow in a frame, shade from strong sunlight, remove the lights at night, attend strictly to watering and remove faded blooms.

Antirrhinums are so easily grown and popular that there is likely to be strong competition for them in the next two classes.

Only strong central spikes will stand much chance of winning. Good plants must be ready for setting out in April. To obtain these the seed must have been sown not later than the end of January. Good garden soil will be suitable, but it must have a dressing of lime before planting. Plant firmly at a distance of 15ins. from plant to plant. Antirrhinums do exceedingly well grown in pots in a cool greenhouse; 5in. or 6in. pots are suitable.

Class 34 is for six pans of one genus of hardy plant.

This class gives the alpine lover a chance, and he will, no doubt, be the principal exhibitor. It is a bit late for many good subjects, but good collections may still be made.

Classes 35 and 36 are for gloxinias and begonias.

In many respects these require similar treatment. Bulbs must be started in March in gentle heat, either in boxes of leaf-soil and sand or singly in pots, a little larger than the bulb. When well started they should be potted on, the gloxinias into 5in. or 6in. pots, the begonias, especially single-flowered forms, will probably take 7in.; plants with double flower forms are not as a rule quite so robust. Compost must be good and should comprise two parts good fibrous loam, one part each decayed manure and leaf-soil. Gloxinias would prefer peat to leaf-soil. Shade from sun, plenty of moisture around the plants and in the air and a steady temperature of 55° at night, rising by day. As the plants begin to flower, drier and more airy conditions will be necessary. A close frame in June would do for the begonias. Flower buds should be picked off begonias till the middle of May. Frequent weak manure waterings should be given when well rooted. Avoid splashing the foliage of gloxinias with manure or soot water.

Large-flowered minulus take the next class. These flowers have come to the front rapidly this last few years. They are ideal plants for large or small gardens and easily grown. Cuttings rooted last autumn and kept on the dry side during the winter should now be growing freely and ready for potting. Older plants could be divided now or pieces of new growth taken off will root readily in a warm moist and shady position; 4in. or 5in. pots will be large enough for them. Minulus like a fairly rich soil and plenty of weak manure water as the rapidly increasing rootstock develops. A shady frame, kept somewhat close till flowering time will suit them.

Class 38 is for six fuchsias to be grown in pots not exceeding 6ins. in diameter. This beautiful old plant is not perhaps so popular as of old, but strongly appeals to many. It is a plant often grown well by the amateur with limited accommodation in the way of glass, and good plants are frequently grown in windows. As the size of pot is restricted, useful specimens rather than wonderful ones, such as were once grown, are expected. Cuttings rooted last autumn and kept quietly growing during the winter, will make ideal plants. Such plants will want their final pot in April. The best plants are those which form a good pyramidal habit without pinching, though it may be necessary to pinch side shoots once. Suitable soil would be, loam two parts, one each of leaf-soil and decayed manure, with sand and fairly firm potting. Shade from strong sun is essential and plenty of moisture at root, and before blooming commences a daily syringing of the plants. The plants may require a neat central stake and the side growths looped to it.

Class 39 is for six native British plants, to be grown in pans or pots.

Ferns would make a most interesting exhibit and vie with the exotic kinds and varieties. There are many good plants in the ericaceæ and leguminosæ orders, and hosts of others.

Whatever is grown it is generally advisable to follow conditions as to soil, sun, shade or moisture under which the plants thrive naturally.

Succulents take the next class.

Large collections of these interesting plants are found in many botanic gardens and also a few in privately owned gardens. Many amateurs grow a few succulents. It is astonishing how often one finds them in the garden where one or two greenhouses comprise the glass-house accommodation. I recently saw a fine specimen of the partridge-breasted aloe in a cottage window. This class will test their popularity. Exhibitors should put up as many species as possible in the space allotted.

Class 41. A group of flowering and foliage plants. This will not only be a test of skill in culture, but largely one of skill and taste in arrangement. Exhibitors should make certain whether the group is to be arranged against a wall or in the body of the hall, and if in the body of the hall, whether the group will be viewed from all sides. In the latter case more edging plants will be required, and a different style of arrangement to that of the group against a wall. It is not necessary to have all choice greenhouse plants. Annuals in pots should be included.

Class 42, and the last, is for the best new plant introduced into this country since 1914.

This is a particularly good idea and should bring forth a collection of plants such as will give the judges food for thought, and exhibitors and those interested in new plants a theme for discussion after the judging. ARTHUR J. COBB.

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NOTES FROM CONTRIBUTORS

THE HARDINESS OF GLADIOLUS PRIMULINUS.

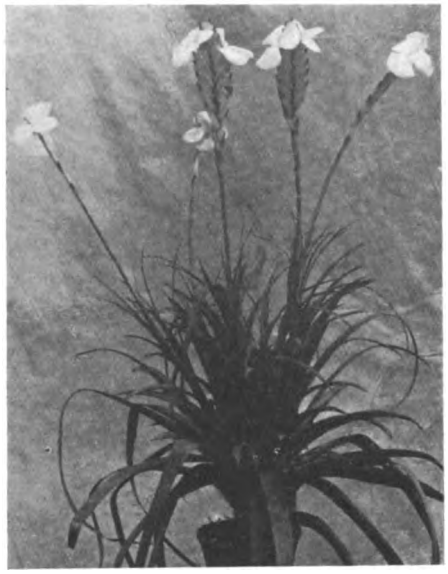
THE popularity of the gladiolus as a garden flower is increasing very rapidly, and the recent wireless talk upon it by Mr. W. J. Unwin is calculated still further to increase its adherents. It was a little disappointing, however, that the lecturer laid no stress upon the hardiness of Gladiolus primulinus and of the many florists' varieties with primulinus "blood." There is, I think, no doubt that the "prim" and "medio" varieties are more reliably hardy than the old Tritonia (Montbretia) crocosmæflora, and they are certainly infinitely hardier than the newer large-flowered "Montbretias." Many a clump of Tritonia crocosmæflora has perished because a jobbing gardener or handy-man has, in his enthusiasm for tidiness, removed the foliage in late autumn; but a clump of Gladiolus Orange Brilliant with the tops shortened (for experiment) to 3ins., and in a position subject to flooding, has, with me, survived the past winter without the least damage to corms or spawn, though both must have been *frozen in wet ground* on several occasions. The same clump withstood the winter of 1923–24 under exactly similar conditions, except that the withered foliage was not removed. Perhaps a dozen named varieties and a quantity of unnamed seedlings have been wintered outdoors in my stiff brick-earth soil during the past two years, and not a corm has failed to come through satisfactorily. Strangely enough, the then newly introduced Gladiolus primulinus is described in the Supplement to Nicholson's "Dictionary of Gardening" as a *stove* species!

Mr. Unwin, in his wireless talk, laid stress upon a light, rich soil as most suitable for gladiolus culture, but I think one can overdo the richness, and am sure that a fairly stiff soil suits them better. Twenty years ago, on a light, rather hungry soil which suited conifers and all kinds of shrubs "down to the ground," I could not grow gladioli so that they would increase satisfactorily, although, for experiment, I tried them in the rich earth of an onion bed. In some ground near by and on a lower level, of which the basis was a very stiff marl or marly clay, gladioli luxuriated. The primulinus hybrids are much hardier and increase far more rapidly than do the old "stiff-necked," large-flowered Childsii, nancianus and gandavensis strains, and may be expected to flourish in any decent soil which will retain moisture in summer; but that their preference is for a fairly stiff loam there can be no question. Good rose soil is good gladiolus soil also.

In comparing the increase of the primulinus and large-flowered sections, I am, of course, thinking of average varieties. A variety such as America would be difficult to surpass as regards ease of propagation, but America spawn will not flower the first season, as even pea-sized spawn of some of the "prims" often will, and these latter will reproduce themselves freely from self-sown seeds, if the gardener will allow a seed-pod or two to form.—R. V. G. W.

TWO HANDSOME GREENHOUSE PLANTS.

UNDOUBTEDLY one of the best plants for a warm greenhouse is Tillandsia Lindeni, introduced from the Andes of Peru in 1867. Tillandsia is a large genus of the Bromeliaceæ, but few species find favour with growers outside botanic gardens. The subject of this note is well shown in the illustration, the plant having five spikes of bloom. The first flowers open about Christmas time, and there are usually two blooms fully expanded at one time on each spike; as these fade others appear, and thus the flowering period is extended over three or four months. The colour is a beautiful shade of blue or bluish-purple, and they are exceptionally bright and cheerful during the winter



TILLANDSIA LINDENI, FROM PERU.

months. There is no difficulty in growing this plant and frequent re-potting is not needed. The rooting medium consists of peat and leaf-mould in equal parts, and ordinary flower pots or fairly deep pans are suitable receptacles which must be well provided with drainage. Fresh soil is given after the flower spikes are removed, and old plants produce a number of side shoots which can be removed and potted off singly.

In these days pancratiums and hymenocallis are not often met with, although they are well worthy of a place in the warm greenhouse or where a temperature of 50° to 55° is kept up. H. macrostephana produces sweet-scented white flowers, six to ten being formed in an umbel on a stalk 10ins. in length. The leaves are from 1ft. to 2ft. long. The illustration gives a good idea of the general characteristics of this useful plant, which

THE SWEET-SCENTED HYMENOCALLIS MACROSTEPHANA.

usually flowers in November and December. Frequent re-potting is not desirable, but when such an operation is deemed necessary, a good fibrous loam should be employed, with a little leaf-mould and sand added. Provide the pots with liberal drainage, and allow ample root space, then no more re-potting will be required for two or three years. H. macrostephana is a bulbous plant and the base of the bulb is planted just below the surface of the soil, and any necessary root disturbance should take place just prior to growth becoming active. The plants are kept more or less moist throughout the year, the greatest quantities being afforded when new leaves appear, which is immediately after the flowering period.—T. W. B., *Chepstow*.

POLYANTHA ROSES.

POSSIBLY nothing gives a better display throughout the whole of the summer months or for a longer period than polyantha roses. They are of very easy cultivation—all they ask is that the ground should be well dug, and very deeply, and then each year well fed. For beds hard pruning should be practised. The plants then make better growth and continue to flower for a longer period. Some of the varieties also make very pretty low hedges. For this purpose the stronger-growing varieties, like Orleans Rose (pelargonium pink), Edith Cavell (scarlet crimson), Orange King (the new orange sort) and Mrs. Cutbush (bright pink), are the most suitable. For beds the new Orange King (a bright orange with a tinge of salmon in it) is very beautiful, also Salmon Queen (another very beautiful new sort, bright salmon pink). Chatillon Rose is another very fine sort; it has trusses similar to the climbing American Pillar, and the colour is almost identical. Edith Cavell and Girlie are two of the best scarlet crimson sorts; for a good pelargonium pink, Orleans; Mrs. Cutbush, one of the originals, but still one of the best, for a good, clear pink; and Juliana, pale flesh, or better described as coral pink. These are the taller-growing sorts. For the very short-growing sorts, Ellen Poulsen (deep pink, very sweetly scented), Baby Tausendschön (a soft pink), Rudolph Kluis (a red form of Ellen Poulsen) and Greta Kluis (very similar to Baby Tausendschön but much deeper in colour) are the best. All these sorts make excellent short standards, and if grown on stems about 2½ft. to 3ft. high, help to make a most picturesque and ornamental bed. All the polyantha roses are very useful for pot culture, and are quite easily managed. They are constantly shown at the big horticultural shows grown in this way.—C.

BROCCOLI ALL THE YEAR.

THIS mild winter we have been able to to cut broccoli every week and to supply insistent demands for this fine vegetable. Success is entirely dependent on the weather, but a little planning is also necessary in order to have plants maturing in succession. Autumn broccoli, which come in after cauliflowers, are sown in the open in March. One sowing gave quite ample plants, but the transplanting was done at intervals, a few every week until sufficient were ensured. An improved Walcheren and Michaelmas White were the varieties. The last plant was cut in January. Winter kinds are generally more or less of a lottery, but not this year. Sown in April, we planted out in June and July, and we are still cutting heads yet. We rely mostly on the sprouting kinds, but this year Early White has been everything that could be desired—fine close heads, large size and excellent flavour. The spring kinds depend very much on weather, also, but we have fine plants coming on, tried and true varieties which seldom fail if given reasonable weather.

We would point out that broccoli must be planted firmly and given more space than cauliflowers.—CLYDESDALE.

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SIMPLE GARDENING

STOPPING CHRYSANTHEMUMS.

FROM the early part of April to the middle of May it will be necessary to stop the leading stems of many varieties of chrysanthemums. The plants, in their normal growth form buds at the point of the shoot; in every case, at this season, those buds are overcome by growth shoots immediately below them, so that the latter grow and the buds shrivel. But the bud has done its work—arrested continual growth of one stem and thus caused several more to form. In the case of exhibition varieties and others that are required to bear blooms on given dates, stopping must be done. The stopping takes the place of the bud: it arrests growth of the main stem and causes several side ones to grow. Of course, only one shoot may be retained if this is desired, instead of three or more. Stopping, in the case of many varieties grown to form specimen plants, is absolutely necessary, as only a few are naturally free-branching enough to be grown on without it. Stopping does not mean cutting down, as it is done by merely removing the tip of the leading stem.

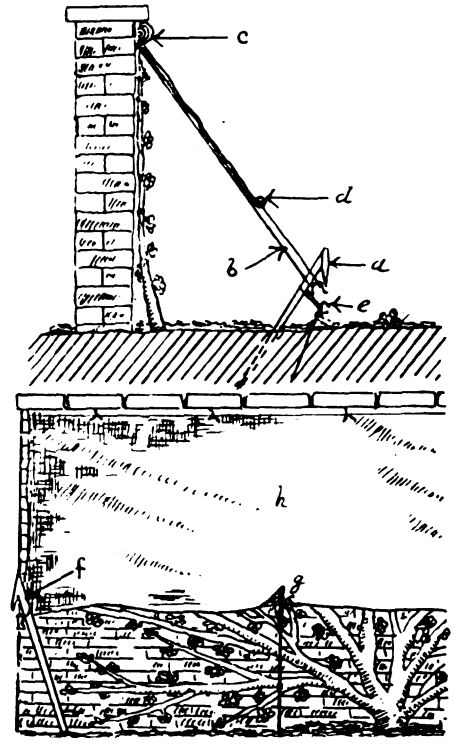
TYING DOWN VINE AND PEACH SHOOTS.

The amateur grape grower generally becomes enthusiastic in his work when young shoots appear and, also, the embryo bunches of grapes. When bunches can be seen in the points of the young shoots, even many experienced cultivators hesitate to remove any but the very weakest. But it is advisable to make up one's mind promptly and rub off, first the weakest and then the badly placed shoots at this early stage of their growth.

Healthy vine and peach shoots grow rapidly at this season and require very careful and constant attention. A cultivator who has not grown these fruits before may be very uncertain as to the treatment of the new shoots now. First, I will refer to vines. A young branch bears a bunch of grapes, sometimes two; the bunch nearest the main rod should be retained, the other, where there are two, pinched off. Then the branch itself should be stopped at the second or third joint beyond the bunch retained, so that by midsummer all roof space will be just covered, not more. The new shoots grow upwards towards the roof-glass, and it is necessary, except in lofty houses where special wire arrangements are made, to tie them down to the wires under the roof and 18ins. to 2ft. from it. This tying work must not be done at one time or in one day. With soft strands of raffia, tied about 6ins. from the end of the shoot, the latter should be depressed a few inches only to prevent the tip touching the glass. At intervals of a few days the shoots can be brought down to the wires safely. When the vines are in flower the final tying may be done. In the case of peaches and nectarines the most basal shoot on the present fruit-bearing branch should be neatly tied; others, on long branches, will require stopping where there is danger of overcrowding. This young basal shoot is an important one, as it will be the fruit-bearing branch next year and so take the place, probably, of the one on which it grows this year. Approximately, all new shoots should be tied at a minimum distance of 4ins. apart.

PROTECTING FRUIT BLOSSOM.

In many parts of the country the fruit buds are numerous on apple, pear, plum and cherry trees. The recent cold weather has had the effect of retarding the development of the buds, and so we may hope that the flowers will escape severe frosts. But whether plentiful or scarce, the blossom should be covered during the night-time and the early part of the day following night frosts. It is very important that the flowers be kept dry, as if slightly frozen while in that



condition less harm would be done than would be the case if they were wet when frozen. As far as possible, too, covering materials should be kept dry. This can be done by allowing them to dry before they are folded each morning. Wall trees are easily protected by using scrim or tiffany as shown in the sketches. It is not necessary to cover the trees from top to bottom; one-half or a little more being sufficient, as frost strikes downwards. About 3ft. from the wall drive in pegs 6ft. apart, shown at *a*, *b* is string holding securely the scrim, unrolled from *c*, at *d*. Under each long peg drive in a small one, *e*, to ensure additional firmness. The corner pegs should be driven in at a slight angle outwards, shown at *f*, and not upright, similar to the one *g*; then the canvas, *h*, will be held firmly against winds. Rough frames may be erected over small trees in the open quarters to bear up light scrim. A few evergreen branches, judiciously tied to the branches of bush-shaped trees, will afford protection. Herring nets, doubled, may be used in place of tiffany.

CUCUMBERS.

This note is intended chiefly for those persons who wish to grow their own cucumbers but have not had any practical experience. The plants thrive best when they can have a summer temperature and plenty of moisture; with expert treatment they can be grown in a very high temperature at express speed; but we are now considering the best treatment for them in warm greenhouses, pits and frames. The best compost is one made up of fibrous loam and half-rotted leaf-soil in equal proportions for the seeds and seedlings; the same for the growing plants, with rotted manure added. One seed should be sown in a small pot, the seed being placed flat and covered with 1in. of soil. Place the small pots close together in a propagating frame or a box on a stage and cover with glass. Careful watering is essential, else the seeds and seedlings will suffer. In a glass-house, heated, the bed should be made up one week prior to planting, to get the soil warm. The latter should form a bed 2ft. wide and 1ft. deep; the cucumbers being planted 3ft. 6ins. apart, trained to stakes and wires, and the ends pinched off when the main stem is 2ft. high. In frames, cucumbers succeed best grown in similar soil 1ft. deep on a hot-bed. The plants are allowed to ramble over the surface of the bed, stopped occasionally and surface-dressed as roots appear on the soil. Watch THE GARDEN for more cultural details in due course.

SOWING AND PLANTING ASPARAGUS.

Asparagus plants, well treated, are long lived, so it is well worth while doing all preparatory work as thoroughly as possible. In naturally sandy loams and where seaweed can be obtained as a surface dressing mixed with littery manure in the winter, very little trouble need be taken other than that entailed by weeding and feeding in July and August. In heavy soils beds should be raised about 6ins. and deep cultivation be the rule; but all elaborately made foundations for the beds are quite unnecessary. The surface soil should be thoroughly broken before seeds or plants are put in. Sow the seeds thinly in drills nearly 2ins. deep and at least 16ins. apart. Plants should be inserted 1ft. apart on tiny ridges, so that the roots may be spread out evenly, and covered with 3ins. of heavy, or 4ins. of light, soil. After planting or sowing, the surface of the bed should not be trodden down nor beaten with a spade. Overcrowded plants never present much sturdiness, and thus close planting should not be done. GEORGE GARNER.

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UNSEASONABLE PRODUCE

THERE is a general belief that efficiency of transport is one of the main factors in the world's progress. There is no doubt that the speed at which produce from all corners of the globe is carried to this country has brought the gastronomic seasons together. This brings a constant influx into the British Isles of unseasonable garden and orchard produce, much of it at a price which is practically within reach of all pockets. By this I do not mean such fruits as oranges and bananas, which, although obtainable the year round, nevertheless have their origin in tropical or sub-tropical countries. Neither of them are capable of outside cultivation in this country, so they are by nature exotic. Rather do I refer to such flowers, fruits and vegetables as are in common cultivation in this country during their proper season, but are also supplied from abroad at times when the home-grown kinds are unobtainable.

They can be seen in any fruiterers or florists; and what a varied collection! Lilac from the South of France in January, artichokes from Brittany in February, plums, peaches, pears and nectarines from the Cape throughout the winter, new potatoes from Algiers in December, marigolds from the South of France in January, French beans from some place or another all the year round. This is only a selection. Many of them are of excellent quality, but I think it is safe to say that they are never so good as those grown at home. Home-grown forced garden produce, owing to its expense, has only a limited appeal and so is confined to a small public who like novelty, but this general importation, although useful, is not altogether satisfactory.

Surely much of our pleasure in our garden produce is that of anticipation. We look forward for days ahead to the first dish of succulent young peas from our garden. The smaller the supply the greater the pleasure. Even Brussels sprouts and cabbages are looked forward to at the beginning of the season. Towards the end even of the pea season the edge is taken off our appetite and we look upon them as a matter of course as an ordinary vegetable. Now, supposing that all the good things in vegetables and fruit are obtainable the year round, we shall not only become satiated with them, but our taste will be blunted. We shall no longer be able to masticate our peas with the same pleasure, in fact, all peas will taste alike to us. Most of the best things in the world come to London, but a plethora of goodness never made a man an epicure.

I remember at school being taught that the downfall of Rome was mainly owing to the banquets of nightingales tongues and other out of the way delicacies that became the fashion among Roman society; it would be a tragedy if historians a thousand years hence were to lay all the troubles of the present era to a sort of gastronomic effeteness.

ICE STORMS

Much as we may grumble at our climate, we have a great deal to be thankful for. Among other things we do not suffer from ice storms, which is a most unpleasant form of weather, for it always causes untold damage to trees. These storms are brought about by rain falling from a warm upper strata of air on to a belt of frost near the ground; the consequence is that every branch and twig is covered with a coating of ice which ultimately becomes so heavy that the branch cannot bear the weight and comes crashing to the ground; I have seen twigs three times their normal diameter from the great coating of ice surrounding them and thin grass stems enlarged to the size of candles. Apparently the latest town to suffer from such a visitation is St. Louis, where the damage done to trees has been enormous. I was in Boston in November, 1921, when the city experienced one of the worst ice storms on record. Although Boston suffered severely, it was nothing compared to Worcester, Mass. I went there on the next day and found hardly a whole tree standing in a town famous for its fine timber. I have forgotten the exact number of trees totally destroyed in the town area, but it ran into many thousands. These storms are usually very local in their action; for a few miles beyond Worcester there was a horrible scene of desolation with broken trees, telegraph poles snapped off, and wire lying tangled on the ground, while in the next valley, the moment we were over a small divide, conditions were quite normal. E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

SHRUBS FOR THE ROCK GARDEN, by Dr. R. Lloyd Praeger.

SNAPDRAGONS.

A WANDERER'S NOTE BOOK, by E. Enever Todd.

CHEMICAL MANURES AND THEIR USES.

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OLD-FASHIONED FLOWERS

THERE ARE NO SUBJECTS WHICH LEND MORE CHARM AND GRACE TO THE GARDEN THAN OUR OLD-FASHIONED AND TIME HONOURED FLOWERS.

IT is a matter for regret that so many old-fashioned flowers —fostered almost like children by our forefathers—should have been banished from our gardens, elbowed out by the introduction of new species, or varieties of those then existing in the belief that these later introductions were so much in advance of what had been previously grown. Probably, had they waited a few years before they took such a drastic step, many of them would still enrich our gardens of to-day. Cultural details of practically every class of plant grown are far in advance of what they were some sixty years or more ago, so it is more than probable that, had owners and growers retained these old-fashioned flowers for a time, many would have held a different opinion and given more attention to their requirements. So many had a charm of their own which is lacking in some of the flowers that are barring their return to the position and esteem they once held among flower lovers.

What about fragrance? There are many new species that lack that sweet perfume so predominant among those old flowers that adorned our gardens a decade ago. Take roses as an instance. It is true raisers are taking more pains to instil fragrance into the flower just now, but there are scores deficient of smell, and it is these that have ousted such good old varieties as Lamarque, whose pure whiteness and sweetness entitle it to a foremost place among climbers, thriving best on a warm wall. Then there are the moss roses, so frequently found in old gardens more than half a century ago, but now not half as much grown as their merits deserve. Besides Lamarque, just mentioned, there is another very old variety among the noisettes, Aimée Vibert, very fine as a pillar, its clusters of pure white blossoms, though small, commanding attention; it will thrive almost anywhere, in any position. For a good autumn rose what is better than that old Bourbon, Souvenir de la Malmaison, a large full flesh-coloured rose and very sweet; and many of the old chinas, also, supplied a wealth of flowers varying in colour from early April up to the end of the year. While speaking of roses it is well to mention the old yellow and white Banksias, whose clusters of small double flowers cannot fail to please. These require a warm wall and a light hand in pruning, as also does that very fine single rose bracteata, better known as the Macartney rose, white with showy yellow stamens, and flowering well into November. These last-mentioned varieties thrive and flower luxuriantly on a south-west wall at Bicton, East Devon. Yet one other I must mention, the old York and Lancaster rose, whose striped flowers enamoured our forefathers, yet it is rarely seen nowadays.

PULMONARIA, THE LUNGWORT, HAS ATTRACTIVE FLOWERS AND FOLIAGE.

It is very hardy and a most interesting border plant, full of vigour.

The dictamnus or fraxinella is one of the oldest inhabitants of our gardens and is a capital border plant, easily raised from

MULLEINS ALWAYS LOOK THEIR BEST WHEN FREELY GROUPED.

seed; perhaps the white variety is the best, as it is so useful for cutting, but the purple is very pretty and well worth growing. These are interesting plants, frequently alluded to as the "burning bush"—being smothered with a resinous exudation on the stems they burn quickly if a light be applied towards evening—and are excellent as an edging to a large bed or border of flowering shrubs.

The mulleins or verbascums thrive in any ordinary garden soil and show best when freely grouped. They go on flowering for a long period, while their showy flowers, mostly yellow, stand out well above the foliage: V. olympicum probably being the best, reaching 6ft. in height or more. Salvia patens, though but half-hardy, is a fine subject for summer decoration of the outside garden; its intense blue flowers call for special mention, but it is no use trying to grow it in poor soil, or the spikes will be very indifferent, but given good culture it is sure to please. Treatment as for the dahlia during winter is all that is necessary to retain the plants from year to year, and our gardens would be much enriched by a freer use of this very excellent sage. The dicentras—perhaps better known in the old days as dielytra—are charming hardy herbaceous plants, D. spectabilis being one of the best and a very old inhabitant, frequently termed

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"bleeding heart" by the cottage folk and highly prized by many of them.

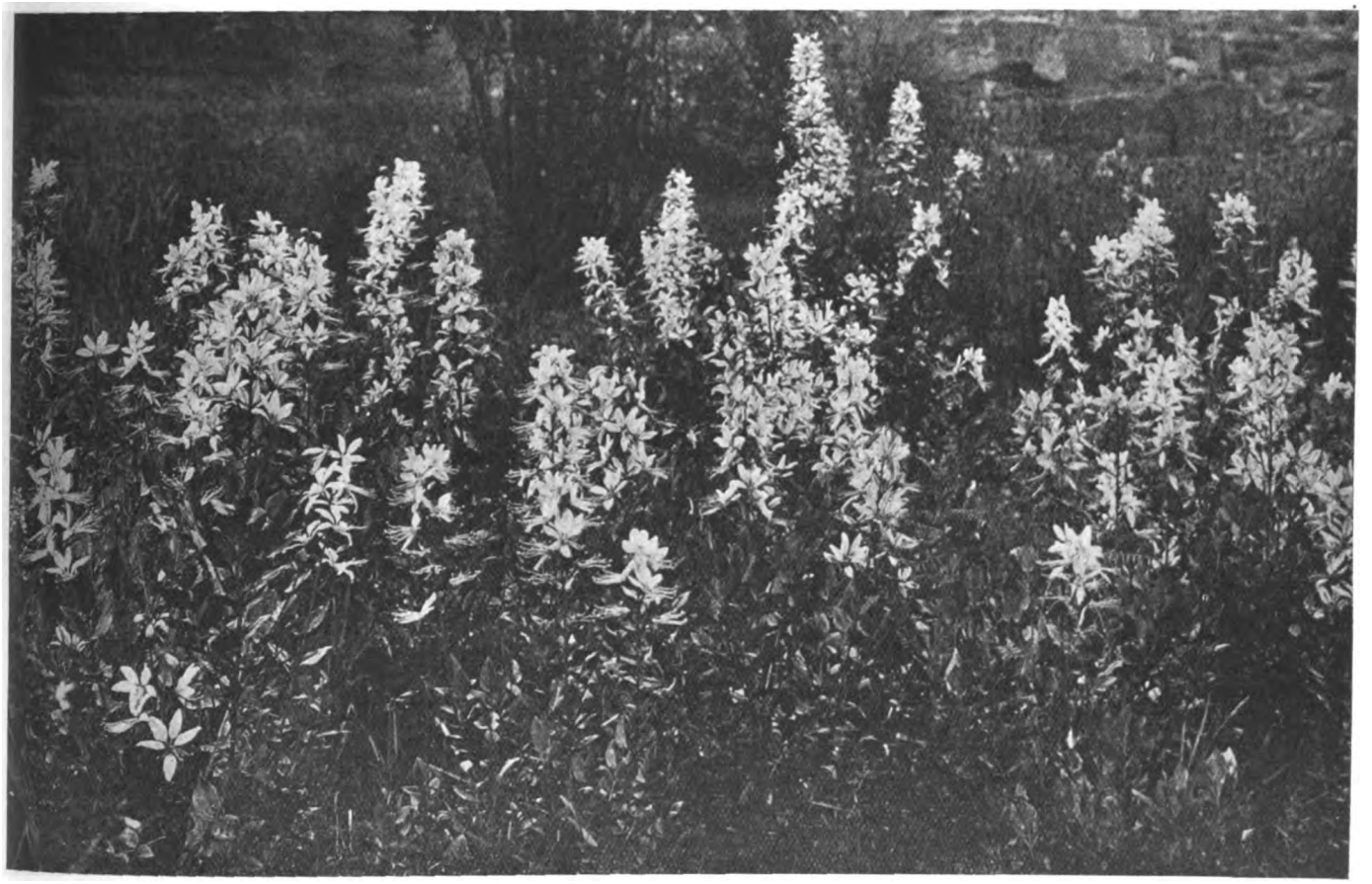
Lychnis chalcedonica was a special favourite long years ago with its bright scarlet clusters of flowers, long retained upon the plant, which added to its usefulness as a decorative perennial in our borders. Here again the newer varieties have almost driven it out of cultivation. Another old scarlet flower, Pentstemon Murrayanus, is now seldom seen, owing, no doubt, to similar circumstances; nevertheless, it was much admired and stood by us for many a year under fair treatment. Commelina cœlestis has a lovely blue flower—true, not very large, but freely produced on stems some 18ins. in height. It winters well in the ground in Devon and Cornwall. It has thin tuber-like roots similar to Salvia patens, and on its introduction over a century ago was grown under glass. The flowers and habit of the plant remind one of the tradescantias.

Among the Lily order few of us appear to have been able to cultivate so successfully as did our forefathers Lilium candidum, the cottage lily. We know of its presence in most cottage gardens of bygone years, but it is now rarely seen in good condition. The finest show that has come under my notice was of plants growing and flowering abundantly close to the stem of an old standard pear tree in Devonshire, with many of its healthy bulbs fully exposed to the weather and packed as tightly as a rope of onions; no transplanting or division had evidently been done for a number of years. My advice is, if they are doing well let them alone. L. candidum was introduced into this country as far back as 1596 and has always been a universal favourite, for the flowers are of the whitest and very fragrant.

Good beds of the old Persian and Turban ranunculus are few and far between compared with some thirty years back; the flowers are very beautiful and well repay the cultivator for any extra trouble spent in the preparation of the site and soil so necessary to ensure success. Thorough drainage 18ins. or so below the level of the soil, good loam, a little leaf-soil, and some well decayed cow-dung below planting level, will grow good flowers if tubers are planted in February. Hydrangea hortensis and its varieties are still with us, being long cultivated by cottage folk, and many a fine old bush can frequently be met with in the western counties, where they appear to thrive best, not being subjected to hard winters which kill the flower buds. For want of a better name—not knowing the correct one—cottagers often call them "changeables," on account of the flower heads changing colour. In Bocconia cordata, the plume poppy, we have an excellent foliage plant independent of the terminal panicles of creamy white flowers, which are produced in abundance when the plant is well grown. It is at home in a large bed among shrubs or in the herbaceous border among other perennials, but is far from being common in gardens. Malva moschata I grew largely in the herbaceous border nearly forty years back, finding it very useful for cutting. It grows some 2ft. high and is sweetly scented, but I have not come across a plant for some years now.

The tradescantias or spiderworts are worthy of more extended culture, the blue T. virginica and var. alba (the white variety) are to be found in quite small gardens around London, showing that it is a good town plant, but in the larger gardens it does not appear to have held its own. Another of the herbaceous order, Hesperis matronalis, which has long been a most valued garden plant, the old cottager evidently knew how to cultivate, as it was frequently found in a thriving condition. The flowers are very sweet and come early into flower. The double kinds are especially good for indoor decoration when cut. The surest method of retaining the stock is to propagate by cuttings in early summer. Plumbago Larpentæ gives us another blue flower—we have not one too many of such colour towards the end of summer. A sunny position suits it best, and the finest colony that has come under my notice was close to the sea in South Devon, hanging over a stone wall on a very dry border that held its roots.

We older folk can remember the bright patches in the border afforded by Monarda didyma. Its deep red flowers always attracted attention, yet now how seldom we find it given a place even among herbaceous plants, or, if we do occasionally come across it, there does not appear to be that robustness among them as of old. They thrive, though, in ordinary garden soil, but should never suffer for the want of



THE BURNING BUSH OR CANDLE PLANT, DICTAMNUS ALBUS, FORMS AN EXCELLENT BORDER.

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moisture. Polemonium cæruleum and its white variety are good dwarf plants for the herbaceous border, and, though not showy, are interesting and likewise very free. Here the plant is known as Jacob's ladder to those with little experience in gardening matters. The variety himalayanum is well worth growing.

The hardy geranium (cranesbill) gave us a host of colours and is still to be found in variety where old-world flowers are admired. Growing in almost any soil and reaching some 2ft. in height, the Persian bellflower, Michauxia campanuloides, is a most interesting plant, but unfortunately does not appear to have a long life with us in this country. A somewhat elevated or dry position with a slight protection during winter gives it a better chance of pulling through, and I was particularly fortunate with its culture at Bicton.

Galega officinalis is another old garden friend. Free-flowering and useful for cutting, this blue and its white variety alba should find a place in the border; the foliage, too, is good, and it is altogether a desirable plant to cultivate. Pulmonaria, the lungwort, is valuable on account of its early flowering and its handsomely marked foliage with splashes of white. The plant is very dwarf, and has blue or white spikes of flowers. It thrives well in shady nooks, and it is a pity that it is not more frequently met with in gardens. In the old days it was supposed to be a cure for lung disease, hence the name lungwort.

Aconitum (monkshood) is a very old garden plant, yet it is only now and again that one sees it, although if left undisturbed it forms quite a colony, doing well in shady parts of the garden. It is easily increased by division, but no particle of root should be left about, as it is most poisonous. The alum root, Heuchera sanguinea splendens, is a really good front border plant with compact foliage, and the slender spikes of crimson flowers freely produced are valuable for cutting in early summer. Another evergreen plant, so valuable for mixing with cut flowers in large vases and yet seldom met with, is Ruscus racemosus, better known to-day as Danæ racemosa or Alexandrian laurel. It does not grow very tall—2ft. to 3ft.—but its finely cut long pendulous shoots are splendid for the purpose mentioned, and one can cut it indefinitely. J. MAYNE.

THE MODERN GLADIOLUS

IN reading an article written about sixteen years ago on the gladiolus, the following passage particularly interested me, "However great our enthusiasm for the gladiolus may be, we have to acknowledge that it can hardly be classed as one of the great flowers of the people—it just misses greatness." At the time this was written, it was no doubt perfectly true, it would also have been equally true of the sweet pea less than thirty years ago. The modern gladiolus does not, in my opinion, "just miss greatness," and I feel sure that if the author of my quotation could have foreseen the wonderful results which crossing and inter-crossing the various types or species (particularly the primulinus species) have given us, he would undoubtedly have prophesied a glorious future for a flower which apparently did not then impress him.

Perhaps a close interest and fairly wide experience in sweet peas leads me to compare the two flowers, which, although differing in structure, resemble one another in character. Both flowers are seen to their best advantage when cut and used for house decoration, both are easily grown, adaptable and reasonable subjects. Almost any kind of soil and situation will suit either, they are both inexpensive and embrace a remarkably wide range of colours and shades. The keen attention of hybridists has been, and will continue to be, attracted to the sweet pea and the gladiolus on account of their latent possibilities. Comparing the two flowers still further, we find the sweet pea scores with its lengthy flowering period of individual plants and with its perfume; on the other hand, we have the comparatively long time for which a bunch of cut gladioli will last in a fresh, clean condition.

In my opinion the gladiolus has now attained that stage in its evolution or development which the sweet pea reached about twenty years ago and one can confidently predict a sharp rise in public esteem for the former without fear of serious contradiction or any undue stretch of imagination.

Just what measure of popularity the gladiolus will eventually attain, will depend mainly on the extent and rate of progress as regards improvements in form and colour. Of late years, progress in these directions has been rapid, and a very great many new varieties are each year being put on the market. There is, and will be, an increasing temptation to place novelties in commerce that are little or no improvement on existing kinds, just as in the case of other popular flowers—roses, sweet peas, etc. I sincerely hope raisers will endeavour to avoid this sure source of disappointment to growers, which is more serious in the case of the gladiolus than in almost any other flower. A sweet pea novelty at 1d. or 1½d. a seed is quite a different proposition from a gladiolus novelty at £1 or 30s. a corm.

Gladioli have been grown in this country for hundreds of years, and I expect there have been articles in THE GARDEN about them ever since it was first published, but from what I have observed, I feel sure the general flower-loving public here is only just becoming aware of their real value. In this respect, the Americans and Canadians are ahead of us; but when the ease of culture and the amount of pleasure the gladioli give in the house is fully realised, their popularity will rival that of the sweet pea or the carnation.

Most of my readers will be aware that there are many different species of gladioli, mostly of African origin, but these have been intercrossed to such an extent that it is perhaps impossible to classify all modern varieties under their respective sections. We need only concern ourselves with two types, both autumn-flowering, *i.e.*, the large-flowering hybrids and the primulinus hybrids. These differ among themselves in the size, shape and placing of their flowers; but, generally speaking, the large-flowering hybrids have large, bold, wide-open blooms, arranged in a double row facing one way and placed fairly closely together on long, stout stems. The primulinus hybrids have smaller flowers, spaced farther apart on thinner stems, which are, however, wiry, quite strong, and in keeping with the size of the blooms.

Each of these types makes a different appeal to the flower lover. While there is something grand and stately, almost massive, in the splendour of the large-flowering varieties, the "prim." hybrids are light, graceful and so very dainty. One would use the large-flowering for decorating a church or in large vases and baskets for the hall or fireplace, but where a lighter effect is necessary, the "prims." excel. For table decorations they are really exquisite. Last season, I was not surprised to notice several first prizes carried off by "prims." in keen competition against such flowers as roses, sweet peas and carnations in strong table-decoration classes.

I hardly like to attempt to give a word picture of the colours which are now found in the gladiolus, one has to see them to realise their beauty, so clear and clean, and not a bit harsh in tone. Whites, creams, yellows, orange, salmon, lavender-blue, purple, rose, pink, scarlet, blood-red, nearly black, and innumerable attractive colour blendings and mixtures of two or more shades. In the primulinus hybrid section are found quite different colour tones, most of them true art shades: Oriental tints would, perhaps, best describe them. I had never seen such glorious salmon and orange shades before I knew "prims." It does not seem to matter whether one variety or a dozen are used in the same decoration, for they all harmonise so beautifully. I readily grant that some combinations blend better than others, but it is really a difficult matter to arrange any decoration of primulinus hybrid gladioli that will offend a critical artistic taste. It is easy to strike a colour discord with most other popular flowers that is as perceptible as a flat iron dropped on the piano keys. Another point in favour of the gladiolus lies in the fact that it rarely clashes with modern room furnishings, whatever may be the prevailing colour, and most varieties are also excellent under aritficial light. No foliage other than their own is necessary to produce a pleasing effect and no flower is easier to arrange artistically.

I should most probably repeat what others have previously written in these columns if I described in detail the origin of the primulinus species, so I will just mention for those who may not know, that this small yellow gladiolus was found about twenty years ago on the banks of the Victoria Falls, South

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Africa. Unlike any other species, its upper petals are bent over, forming a kind of hood, or umbrella, which botanists tell us was to protect the fertilising organs from the misty spray of the great waterfall. "Maid of the Mist," as it was aptly named, when hybridised with the larger-flowered types, released for our pleasure a beauty of colouring in its progeny transcending all previous introductions. It is no exaggeration to add that "Maid of the Mist" has raised a "possible" to a "probable" flower, it has put the GLAD into "Gladiolus."

The flowering period is lengthy and a judicious choice of varieties will give a wealth of blooms from mid-July until well into October. Probably I shall not over-reach the mark in saying that modern gladioli are as exquisite as orchids, yet as easily grown as mustard and cress. CHAS. W. J. UNWIN.

NOTES ON SOME VIBURNUMS

AS a genus the viburnum is not enough grown. This may appear to be a strange remark considering the fact that practically every garden has a fine bush of V. Opulus or V. plicatus, but it is true all the same. There are about thirty species which are hardy in the British Isles, and they are all of easy cultivation. I know of no genus of shrubs or trees whose general excellence is so great, combined with variety of form and shape. Perhaps a few notes on my experiences with this genus may be of interest to readers of THE GARDEN.

I had better begin with what I consider to be a blot on the excellence of the genus as a whole. This is V. rhytidophyllum. I know that this plant is much praised by Mr. Bean and other experts in shrubs, but I do not agree with their judgment in this case. It is an evergreen shrub with large umbel-like trusses of flowers and red fruits turning to black when they are ripe. I do not find fault with the habit, flowers or fruit, but only with the foliage. At the best the leaves are dowdy, unpleasantly wrinkled and of a dingy green. In the winter they have an ungainly habit of flopping straight down, as if the plant was in the sulks, while they are so easily torn and damaged that unless in exceptional circumstances they look moth eaten at all seasons of the year. Why this plant should be so lauded while others infinitely more valuable are passed over is beyond my comprehension.

A fine species that should be more often grown is V. Henryi. This is also an evergreen with narrow, pointed, dark shiny green leaves, which stand out well from the branches and so are an attraction throughout the year. I have several plants from 4–5ft. in height which are always a pleasure to look at. The flowers are pure white and, although small, are carried in large panicles. The fruit is oval and turns from red to black. It is said that it is sometimes a shy fruiter, but I find that the more exposed the plant is the more it fruits. On the east coast of Scotland my best fruiting plant is on the top of a dryish bank where it is in full sun and is in a draughty position.

Next to it is a plant of V. utile, which I consider one of the best of the whole genus. It is more twiggy than V. Henryi, and the twigs shoot off at odd angles, making the growth most attractive. The leaves are not so long or so narrow as in V. Henryi, and are of a lighter shade of green, although just as glossy, while the undersurface is almost white. The white flowers are borne in May on well rounded trusses, while the buds have a pink tinge. The fruit is blue-black. V. utile, I find, is a shy seeder even in a plant 4ft. high.

Another useful viburnum is V. Davidi. This is an evergreen shrub always of low, compact growth, and is noticeable for its leaves, which are large, averaging about 4ins. in length and 2ins. in width. They are smooth and dark green in colour, and are conspicuous for the three large veins which run longitudinally. The flowers are tiny and, although carried in large heads, are uninteresting. When it fruits abundantly the blue fruits are attractive. One of the advantages of this plant is that it never gets out of hand, so its attractive form and foliage are useful in small borders or under a low window. I have two plants, one on each side of the door outside a low greenhouse, and this appears to be an admirable position for them.

Apart from V. Opulus and V. tomentosum and their forms which are so well known, by far the best of the deciduous viburnums are V. Carlesii and V. fragrans. Although some people agree with me that V. fragrans is the better plant of the two, most gardeners so far seem to prefer Carlesii, the reason I think being that V. fragrans has to be some size before it flowers at all freely. V. Carlesii is a much smaller plant and appears never to exceed 4ft. in height. With me it is not such a good grower as fragrans, and is inclined to straggle,

THE DARK BLUE FRUITS OF VIBURNUM DAVIDI.

or rather it appears to have too few branches and so is open in habit. Fragrans, on the other hand, will grow into a large bush and is a very quick grower. Cuttings struck in 1919 are 5ft. in height, and one of the original plants which germinated in 1915–16 is over 7ft. and is 5ft. through. The great advantage to my mind of this plant is that it flowers from the New Year to the end of March. It has stood 16° of frost in my garden without turning a hair. There are two forms, pale pink and white, and there is nothing to choose between the two. This plant is extremely easy to propagate from cuttings. I have not yet fruited fragrans, nor have I ever heard of a good crop of fruit in this country; perhaps the reason is that there are no insects about at the time it flowers. Farrer spoke of it as very pleasant to eat.

I have a number of other species coming on, but they are not large enough to judge their position in this most useful genus. One which has not yet flowered with me is V. hupehense. From the description the fruits appear to be larger than most of them. It has, however, an attractive growth, more willowy than any other viburnum, at least in its young stage, and I should think is going to prove a very useful plant for our gardens. Another which seems to break into foliage very early in the year is V. lobophyllum. This has round red fruits, and belongs to a group which is rather confusing and of which the best known member is V. dilatatum. E. H. M. C.

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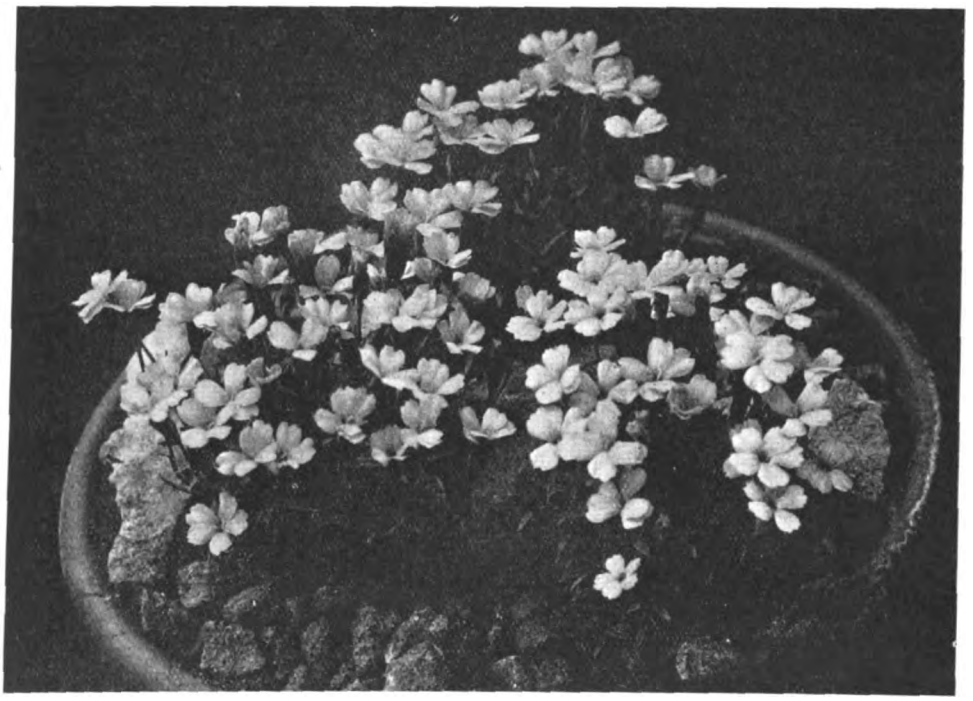
ALPINE PLANTS INSIDE

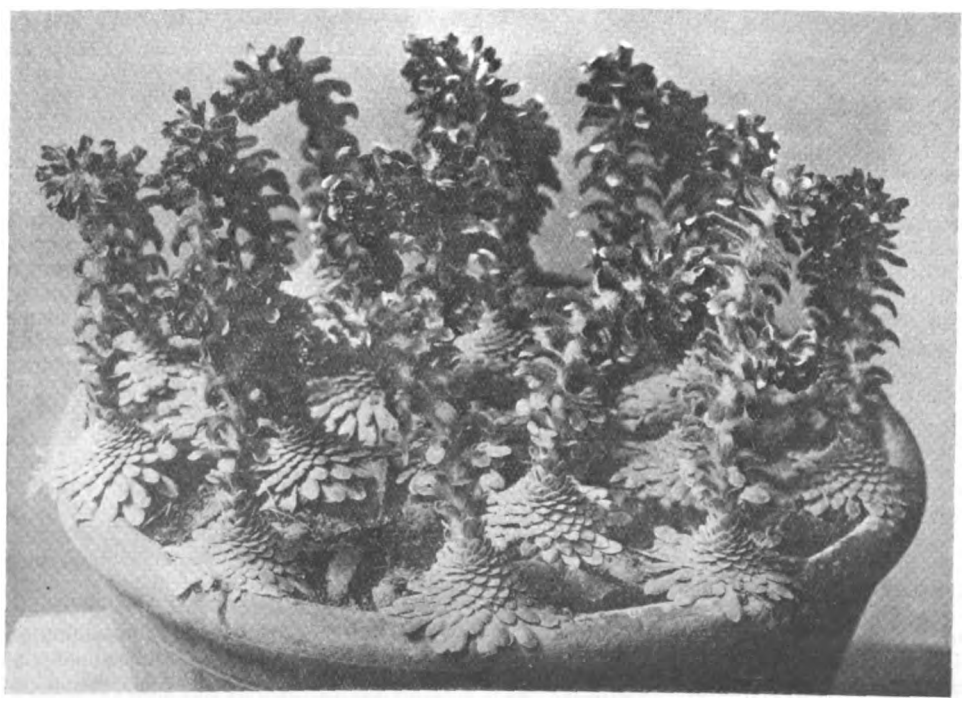
AS MR. MARK PENWICK HAS SHOWN AT VINCENT SQUARE, THERE ARE NO PLANTS WHICH EXCEL SO MUCH AS ALPINES IN GIVING A FINE INDOOR SHOW IN A SMALL AREA.

AS it is impossible to deal exhaustively with the above subject in a note of this kind, it will be readily understood that even essentials must necessarily be comparatively brief, consequently rather incomplete, nevertheless an impartial survey may serve some useful purpose. Seeing that I have in mind two distinct kinds of alpine houses and two wholly different methods of achieving a somewhat relative end, both are so widely variant that each must be dealt with separately, lest confusion arise. The theme then of my present discourse will be the most unnatural of the two extremes, that is the culture of mountain plants as specimens in either pots or pans.

The primary object of any alpine house should be the accommodation of such plants which for various reasons, principally climatic, require the shelter such a structure affords in order that the fulness of beauty can be obtained without all sorts of perplexing problems and setbacks inseparable from the cultivation of many choice rock plants. Apart from these, a great number of others are much improved when treated as pot specimens and successfully grown in the confines of a cold house. Yet again, there are others that require to be frequently divided or otherwise propagated if they are to be of any decorative value. It may be added here that many plants of unsurpassing beauty in the rock garden are practically worthless for the purpose referred to. The essential point therefore is to concentrate on those kinds that are known to respond to this unnatural yet congenial treatment. The minute details of cultivation are numerous. Space only admits of a few of the most important being collectively and lightly touched upon.



DIANTHUS MICROLEPIS, COMPACT IN GROWTH AND OF EASY CULTURE.



THE GRACEFUL SPIKES OF SAXIFRAGA GRISEBACHII, WISLEY VAR.

It will have already been gathered that an alpine house should be light and airy, no artificial heat being required for raising the plants. Coddling at any time will prove disastrous both to the characteristic charm of foliage and sturdiness of flower. The work of re-potting as a general rule should be done after flowering is past, but there are many exceptions to this rule; forethought in these matters is always necessary. Perfect drainage must be provided in all cases. Watering, too, is one, if not the most, important item connected with good culture, yet it is too often looked upon lightly. Attention to all other matters will be of no avail if this be neglected or not carried out with proper care and understanding. The point is to give, and give freely, whenever water is required, but only when. Naturally, during autumn and winter, watering will become less frequent and should never be undertaken during frosty periods. Some varieties of the Kabschia group of saxifrages when allowed to become too dry in the above-mentioned seasons, often rush off during mild spells into premature growth when otherwise they would plump up for flower. Overhead waterings should be avoided generally, though at the proper moment an occasional spray refreshes most plants. This brings me to suitable soils.

Three different mixtures will suffice to cover the field in a general way, though in various cases and with some individual plants some modification of the following composts may be necessary. The unwary should be guided by the soil plants are growing in when purchased, remembering that after the first stages of growth potting soils must be less fine, yet quite free. Compost No. 1.—Three parts fibrous loam, one part half decayed leaf mould and half part sharp sand or grit. No. 2 is formed by adding to the above mixture fully half part lime rubble or limestone chips. No. 3 consists of

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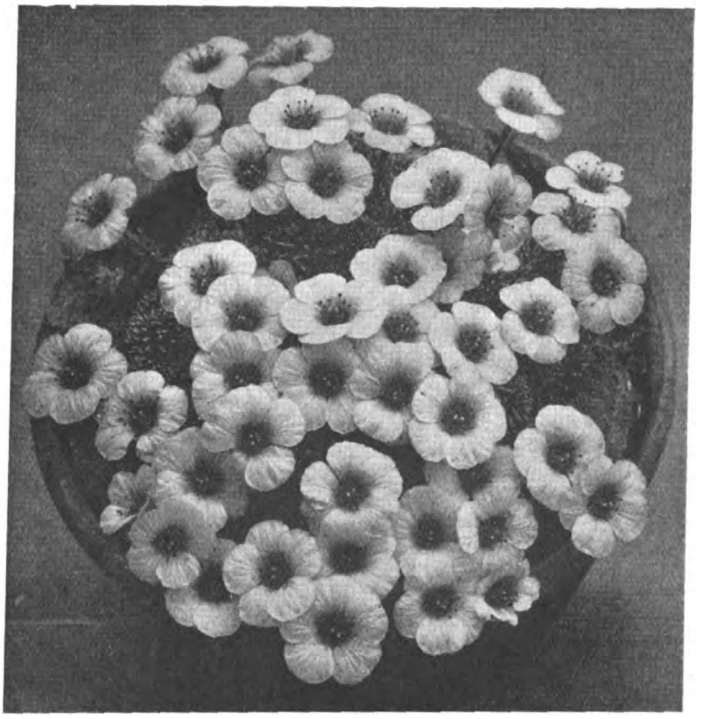
two parts peat and one part light loam and half part sand. To append a list of suitable plants is a perplexing problem, so numerous are they that one would almost hesitate before committing themselves to a short selection, but to exclude such a list would defeat the object uppermost in my mind. As catalogue numbers are impossible, fifty shall be the limit, that is if the Editor permits. By omitting mention other than here of many campanulas, primulas, bulbous plants and a whole host of others that can be grown on in cold frames or kept plunged outside until their prospective flowering season, when they can be brought in to swell the existing floral display or form drifts of colour during dull periods, I shall be able to include more of what might be appropriately termed permanent occupants.



SAXIFRAGA FALDONSIDE COVERED WITH YELLOW FLOWERS.

List No. 1.—Acantholimon venustum, Androsace cylindrica*, A. helvetica*, A. imbricata*, Armeria cæspitosa*, Asperula arcadiensis, Astragalus monspessulanus, Convolvulus nitida, Daphne rupestris, Dianthus microlepis*, Draba dedeana* Edraianthus Pumilio, Erodium chamædryoides*, E. corsicum, Erinacea hispanica, Genista Villarsii, Geranium argenteum, Haberlea Ferdinandi Coburgi, H. virginalis, Lewisia Howellii, L. Tweedii, Morisia hypogæa, Pelargonium Endlicheriana, Phyteuma comosum, Primula marginata, Saxifraga Boryi*, S. cochlearis*, S. Dr. Ramsey*, S. Faldonside*, S. Grisebachii Wisley var., S. hybrida H. Marshall*, S. luteo-viridis, S. longifolia*, S. lilacina*, S. Myra*, Sedum Palmeri, S. spathulifolium*, Sempervivum arachnoideum*.

List No. 2.—Chiogenes serpyllifolia, Conandron ramondioides, Diapensia lapponica, Ramondia serbica, Rhododendron chamæcistus, Schizocodon macrophylla, Shortia uniflora, S. uniflora grandiflora.

With a few exceptions plants in List No. 1 thrive well in compost No. 2, and List No. 2 in compost No. 3. Plants marked with an asterisk are most suitable for pans while the remainder are for pots.

In conclusion let me add, a well appointed alpine house compares very favourably with other less simple and more expensive forms of indoor gardening. For this reason alone it should appeal especially to small amateurs who may not find it possible to satisfy their more cherished ambitions in the outdoor garden, and to whom the question of expense is important. J. T. H.

BULB NOTES

CROCUS VITELLINUS.

LAST autumn I was in the happy position of being able to exchange books with my good friend, Mr. E. A. Bowles. "Hardy Bulbs" went to Myddelton House and "Crocus and Colchicum" came to Whitewell Rectory. I had just got a few new crocuses from van Tubergen of Haarlem, including some vitellinus. This firm and our own Barr and Sons of London I look upon as crocus specialists. Imagine then my surprise when the newly received bulbs flowered to find that they did not tally with Mr. Bowles's description. I sent some to him to ask what they were. The reply came, "What a funny thing writing a book is. You have no sooner put down all you know than up jumps a new fact. That crocus of yours is vitellinus right enough. I nearly jumped out of my shoes when I saw one of this straw coloured form among mine the other day." He went on to say that his came in a newly collected lot from near Jerusalem and suggested that Tubergen got his from the same locality. It is a very charming soft straw colour and a great contrast to the usual orange. I am sure I could soon get as fond of crocuses as a mouse. By the way, I suppose the corms of the different species have each of them a flavour of their own. How else can one account for mice always going for Sieberi in a tray which was partitioned off into receptacles for Imperati, susianus, Sieberi, biflorus and Tomasinianus? Every time it must have been Sieberi, for none of the others were touched.

ERANTHIS TUBERGENI.

This newcomer received an award of merit at Vincent Square last year. I have now a few of my own and have been able to observe it at close quarters with the old Winter Aconite (E. hyemalis). It has much larger flowers and they are of a deeper yellow. Then, whereas hyemalis measured an inch across the top, Tubergeni was an inch and a quarter. Barr, who catalogues it, says it is a great advance on the old variety. So it is, if only it proves itself to be as good a doer and as unfastidious about soil and situation as my short trial suggests it will be.

POETAZ (NARCISSUS) EARLY PERFECTION.

If my one season's experience is not wholly misleading, I struck oil when I bought some bulbs of this variety last autumn, knowing little more about it than its price. It was said to be early flowering, but as such a description is, after all, only relative, an ounce of experience is worth its weight in gold in determining its practical value. Potted on the same day and grown all along side by side with some of its poetaz relations and a pot of the old polyanthus narcissus — Mont Cenis — in a cool greenhouse, this newcomer was in flower nine or ten days before any of them. This alone gives it a special value, which is certainly not diminished when its long, stiff stems and its numerous good-sized shapely flowers are taken into consideration. They remind me very much of Alsace in their colouring, but whereas that variety has not often more than three flowers on a stem, Early Perfection has from five to eight. I wish I had happened to have had some Alsace this year for comparison, as I believe it is the earliest of the original poetaz under glass. I think, however, in racing parlance, it would have been included in "the rest, nowhere." Mr. van Tubergen, from whom I had the bulbs, tells me he knows nothing about its origin except that it is a Dutch seedling which has made a great name for itself by its earliness. Its appearance suggests a polyanthus-narcissus as its mother and not a poet as was the case with all lucky Mr. R. A. van de Schoot's original varieties. I often think what a happy and profitable inspiration that was which came over my friend when he was one day walking in his bulb fields, "Why should I not try polyanthus pollen on a poeticus variety? I don't think this has ever been done." Old friend Time is continually adding to the original varieties and giving us a wider range of choice. Some of these, like Orange Blossom and Orange Cup, are very attractive. Mr. Clarence Elliott, when

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he is not trying to convert sinks and pig troughs turns his attention to the making of big rock gardens. To his presence at Shrewsbury for this purpose I owe his surprise visit last year, when I had a few nice ones in flower. They were new to him, but he showed his appreciation by begging for a few blooms to take back to his wife who was with him there for a few weeks while the work was in progress. Why this aside? Because the opinion of a non-specialist who is accustomed to go about and see things, is always valuable. These new poetaz might well be more widely known and grown.

SHORT STEMS ON EARLY TULIPS IN POTS.

The Editor would be doing a whole crowd of us poor people who have to have greenhouses which can never boast a temperature of more than about, say, 50° F., and who have no means of heavy shading growing bulbs, if he could get someone who has himself done the trick to tell us how we can get decent stems on early-flowering tulips in the third and fourth weeks in January or even in early February. I am disposed to think it cannot be done. Our efforts here are miserable failures in almost every case. There are one or two exceptions. The white Diana is one. I have never grown it until this winter; so it was a pleasant surprise to have a decent pot of it in flower on February 5th. What about the others? With sufficient heat and facilities for very heavy shading and some bottom heat wonders can be worked and the Editor makes our mouths water when he tells us how he buys bunches of nice tulips in January with stems long enough to "cut an inch or so off"—but can such stems be produced in any sort of a greenhouse short of a stove? I am watching my two or three "Mendel" varieties with sanguine expectancy.

POTTING FREESIAS AND PLUNGING.

I read an article in a contemporary recently in which the writer advocated plunging the pots, when the bulbs were first planted. My good friend Mr. G. H. Dalrymple, who has the eye of a hawk for anything that appears in print on the subject of freesias, has taken the writer to task this week. He states he has grown thousands and never has plunged one. So have I, and I, too, have never plunged one. There is no necessity whatever for such a practice. It must be very bothering if it is attempted, as, in favourable circumstances, the fresh growth appears in a very short time and a perpetual series of scratchings down to the top of the pots would have to take place to know when they must be taken out. It is just as well this should be said now when the freesia season is in full swing. Mine began far too early this year. The house which we always knew was our warmest and where only a few odd pots used to go, was three-quarters filled with freesias this year. It must be warmer than we thought. The thermometer has probably underdone the temperature in the past. At all events the whole of those in this house have suffered inasmuch as the stems were weaker and more sappy than they ought to be, and the flowers did not last as long as they usually do when cut. Even that fine Dutch variety Apotheose displayed a weakness in its usually stout stiff stems. I feel pretty sure that all coloured varieties are all the better the cooler they are grown. As these are increasing in favour with flower lovers I feel this fact ought to be known. They do not bear, as far as my experience goes, the same treatment as the old refracta alba.

FREESIAS FROM SEED.

A big firm has taken the bull by its horns and given a prominent place in its 1925 Seed Catalogue to freesias from seed. Messrs. James Carter and Co. have a coloured plate to show their customers the sort of flowers they may expect to get from sowing the seed they offer. It is not in the least exaggerated. Given a first rate strain, good results are as certain to follow as night follows day. The point that is troubling me at present is the time when we may expect to see them bloom. Freesias can be flowered in seven or eight months from the time the seed is sown, but whether this will be found to be a practical working proposition I cannot say. I have my doubts. My own experience points to January or February as being the most promising time to sow if quick results are required, but longer experience and more information are needed to settle the question.

DWARF IRISES IN POTS.

For those on the look-out for something rather out of the common to grow in a very cool house, may I suggest a trial of these four little fellows, Histrio, Vartani, Sindpers and reticulata. They can be had in full bloom at the end, or even the middle, of January in a greenhouse just one remove from a cold house; and if they are grown in small, round pans or low pots, make a welcome change from the usual run of early forced bulbs. Histrio, Vartani and Sindpers have pale blue or grey flowers, and reticulata rich purple. JOSEPH JACOB.

THE USES OF GARDEN NETTING

AT this season of the year netting can perhaps be described as one of the most useful of all garden sundries. To many gardeners the use of this valuable commodity is confined almost entirely as a means of protection from the depredations of birds among the young and succulent seedlings now appearing in most kitchen gardens. There can be no doubt that when stretched over suitable supports this forms an ideal method of safeguarding growing plants and ensuring successful crops at the appointed time; while its value as a protection for growing fruit from birds, wasps, etc., will be readily admitted. Take a walk through any fruit garden during the early part of spring, and one immediately notices the tremendous fascination which young opening fruit-buds have for most of the feathered tribe, although it is only fair to the birds to state that the fruit buds are usually destroyed by birds in pursuit of insects. While it would not be practicable to enclose every tree in a casing of netting, the majority of dwarf and wall trees can be very easily and satisfactorily protected from marauders. If a fine-meshed netting can be hung on supports fixed either to the wall or round the tree in such a manner that it hangs quite clear of the tree itself, it will in no way damage the bloom or interfere with the growth. A protector of this nature will not only render the tree immune from birds, but will also serve to ward off frost and act as a decided break to cold, rough winds. Visitors to recent R.H.S. shows will have noticed the exhibits of both Major C. Walker of Brecon and Messrs. House and Garden Sundries, each of which prominently featured various methods of protection. Major Walker's appliances are solely designed to render growing fruit immune from birds, frost, cold winds, wasps, etc. They consist principally of a fine-meshed netting which is supplied complete with the necessary supports for simple fixing. They have the great advantage of being portable, and can be erected in a few moments by one man. The specialities of Messrs. House and Garden Sundries consist mainly of stout wire supports and frames, manufactured in various sizes, for protecting seed-beds, plants or wall trees. The supports are simply placed in position on the wall or in the ground, and the netting, when fixed over them, forms a complete cage. These contrivances are extremely simple to erect, and when finished with can be taken down in a few moments.

For the training of peas, beans, sweet peas, etc., netting is also extremely useful, inasmuch as it can be taken down and stored in a small space when the plants have finished yielding. For this purpose it will usually be found that a netting of larger mesh and stronger manufacture will be required than is used in the foregoing. An ideal netting for this purpose is that known as the "Simplicitas" brand. It is made from a special strong cotton cord and is far superior to the majority of ordinary nettings on the market, which are usually made from hemp. The writer has had a quantity in regular use for the past five years and it is still as serviceable as when first used. This is all the more surprising when one considers that it stood the test of two winters in the open without shelter of any kind from the weather. It can also be obtained in cylindrical lengths of various diameters, and in this form is particularly useful for supporting clumps of herbaceous plants or for training circular clumps of sweet peas, etc.

Old fishing nets are seldom, if ever, satisfactory, and usually give more trouble in fixing and repairing than they are worth. The additional expenditure of a few extra shillings in this respect is

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usually well worth while. An interesting innovation of recent years is the creation of a string netting department at St. Dunstan's, where many of the blinded ex-soldiers and sailors have been trained in the manufacture of all kinds of nets. The industry has become so well established that at the present time it gives employment to about five hundred of these men in their own homes, and readers might well bear this in mind when ordering nets for the coming season. J. C.

EASTER FLOWERS AT VINCENT SQUARE

QUITE a gay and festive scene met the eye on entering the Royal Horticultural Society's Hall at Vincent Square on the occasion of the usual fortnightly meeting on April 7th and 8th last. The special exhibits of odontoglossums probably took the premier place; while roses, narcissi, carnations, alpine and stove plants and shrubs all added their quota to the welcome display of colour and bloom. Cinerarias and primulas were also represented, massed in groups forming a many-coloured carpet. The daffodil season is a late one this year, and many exhibits are being reserved for the Narcissus Show on April 15th and 16th. Fruit in the shape of home-grown apples in season was in the capable hands of Messrs. Bunyard of Maidstone. The proximity of Easter no doubt accounted to some extent for the small attendance.

One of the main exhibits of primulas was that put up by the Mental Hospital, Napsbury, St. Albans (gardener, Mr. W. J. Jennings). The exhibit consisted of hybrids of Primula obconica in all shades of colour. The plants were all in excellent condition, with a plentiful supply of bloom, and showed the results of careful cultivation. Pinks, pale and deep lilacs, light and dark blues and whites were all represented in flowers varying in size from ¾in. to 1¼ins. in diameter. The flowering stems carried the flowers well, and varied in height in the different varieties from 9ins. to 18ins. These hybrids are excellent subjects for providing a good display of colour in the greenhouse, and should find more favour in the future.

Messrs. Hillier staged an interesting collection of dwarf rhododendrons, collected by Forrest and Kingdon Ward in China and raised by Lord Headfort. Among them were the attractive pale pinks of R. racemosum and its relations, and F 20488 R. orthocladum, with tight heads of soft lilac-blue flowers. It is such dwarfs or semi-dwarfs as these that will prove so invaluable in our gardens when they become common enough to sell at a price cheap enough for all pockets.

An attractive display of hybrid freesias was staged by Mr. G. H. Dalrymple, the raiser of the much admired Freesia Wistaria. The colours, especially of the seedlings, were very varied: some were pinkish tinged with yellow and orange, others cerise, mauve or gold. The self colours in many cases were more effective than the shaded; the yellows particularly were extremely beautiful. All of them are excellent for decoration and easy to arrange artistically. Such varieties as Bluebeard and Mouette or Wistaria and Treasure form a pleasant contrast. Mr. Dalrymple was showing Goldfinch, a beautiful deep yellow with a golden throat; and Treasure, a pale yellow variety on thin wiry stems. Bluebeard is a bluish mauve freesia, and Mouette is pale pink in colour. Some of the varieties were very sweetly scented, others possessed only a faint trace of the true freesia fragrance.

Everyone loves the rose, whatever time of year it may be, and the exhibits of roses at Vincent Square this week had many admirers. Nearly every passer-by stopped to enjoy their fragrance and beauty, especially of those on the stand of Mr. Elisha Hicks. His roses were in excellent condition, vigorous and robust in growth. The colours also were good. The variety Mrs. Elisha Hicks proclaimed itself by its sweet scent, which was effective some distance away. From a point of view of colour and form this rose is somewhat over-rated. Paul's Scarlet Climber made a vivid patch of colour, while the beautiful variety Clovelly with its rich salmon shaded rose flowers, and such others as Betty Uprichard, Mme. E. Herriot, Lady Hillingdon and Madame Butterfly adorned the stand. Lady Hillingdon is of a shade which is hard to beat.

Messrs. Benjamin R. Cant and Sons were showing a splendid exhibit of Padre; the blooms were of good size and glowing in colour. This firm was also showing Sovereign, which is a good yellow bedding rose and is a variety which meets with great favour, as it is not liable to that dreaded disease, mildew. Phœbe, Autumn Tints and Diana were also exhibited. Messrs. Stuart Low and Co. were showing a charming sulphur yellow rose called Roselandia, raised by Mr. Walter Stevens. Most of the roses exhibited by Messrs. Allens were grown in pots and belonged to the Wichuraiana or the dwarf polyantha class. Some of these are ideal for forcing and are very decorative in a greenhouse, especially the varieties Messrs. Allens were showing. Of the dwarf polyantha type, Orange King is a dainty little specimen with a mass of tiny button-like flowers of quite a new shade of bright orange-salmon. La Reine Elizabeth, Ellen Poulsen and Mrs. William Cutbush were other examples. Lady Gay was undoubtedly the best Wichuraiana shown. The large pyramidal trusses of rosy pink flowers borne on long stems were very effective, which could not be said of White Dorothy. This particular specimen could hardly be called a pure white Wichuraiana, and is a poor thing at the best of times, with naught else but floriferousness to recommend it. Among the hybrid teas, Maud Cumming, Betty Uprichard, Lord Charlemont and Hadley were most noticeable.

As new narcissi are constantly being raised, seedlings good and indifferent are brought before the notice of the public, and one wonders which of them will become the proud possessors of a name and in time a place among the general collection of the average gardener. Some should be passed by, but others are an improvement on the existing varieties, while a few are decided breaks and have certain qualities lacking in the older kinds. The allotment of awards of merit is a strange business; it is difficult to understand why certain varieties are received favourably and others are considered unworthy of recognition. Some of the seedlings exhibited by both Messrs. Barr and Sons and Messrs. R. H. Bath and Sons were equal if not superior to those varieties which received awards of merit this week. Perhaps when these seedlings are put up for an award of merit the narcissus world will be taken by storm. The great variety in form and

(Left) PRIMULA MALACOIDES, GOLDEN EYE, OF FLORIFEROUS HABIT. *(Right)* PALE MAUVE FLOWERS OF PRIMULA × BARBARA BAKER.

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colour, the vivid orange cups of the incomparabilis and Barrii seedlings, and the translucency of some of the flowers, called forth exclamations of surprise from many an onlooker. In some of the new seedling trumpet narcissi there is a tendency for the trumpet to be too large in proportion to the perianth, making the flower unbalanced; but no such criticism could be passed on a good variety like Golden Sunrise, which was exhibited by Messrs. R. H. Bath and Sons. The flowers are of great size, a uniform rich gold, and the open trumpet is elegantly frilled. This variety surpasses King Alfred, a similar trumpet daffodil. Bath's Flame was another attractive narcissus shown; it has a vivid orange cup and thin twisted segments. Some good varieties among the many others were Bernardino, Gaiety, Crystal Queen and Golden Dustman.

Wandering up and down before the stand of Messrs. Barr and Sons, one was astonished by the beauty and variety of the modern narcissus, and it was a bewildering task to select a few from among them. Superlatives could rightly be used to describe every one, and yet to be fully appreciated they should be seen. It is surprising that some people keep to the same old varieties when, as could be seen at the Hall this week, there are many others infinitely superior. Crœsus, a fine incomparabilis with a wide orange-red crown; Jasper, Nysa and Sunny Lass, typical of the Barri section, were exhibited by Messrs. Barr and Sons. Pax, St. Olaf, Orange Sceptre, Tamora and Lord Kitchener were various other excellent varieties.

Anemones seemed to occupy most space among the rock plants. A. blanda was present in all its forms, of which Scythinica, dead white within and steel blue without, is the most attractive. Maurice Prichard showed a good purple form of A. nemorosa and the eccentric variety of A. nemorosa bracteata, a Jack-in-the-green flower with a green ruff and a double row of tousled white petals. Messrs. Reuthe showed A. vernalis, a flower of the melting snow, with a deep cup of ivory white enclosing a mass of soft yellow stamens, the outer surface of the petals washed with greyish blue and covered with silky hairs. A. ranunculoides, whose bright buttercup yellow is a break from the family tradition, was shown by Mr. Frederick Wood of Ashtead, who also exhibited a group of Fritillaria pyrenaica, a flower that has the sinister attraction of deliberate ugliness. The heavy waxen bells, greenish yellow inside and dingy purple, heavily bloomed, without, are set off by the pale glaucous foliage and exhale a faint corpse-like odour. They made an excellent foil to the innocent forget-me-not blue of Mertensia virginiaca. Clarence Elliott and Co. gained an award of merit for the hybrid Primula pubescens Barbara Barker of their own raising (Zuleika × Linda Pope), a large pale mauve flower with regular, overlapping petals and a white eye; and another award for Rhodothamnus chamæcistus, which is very nearly a rhododendron, but tolerates lime, and is, therefore, a very valuable little shrub, for it produces its flat, pale pink *Alpenrosen* very freely and is still a decorative little bush when out of flower. Messrs. Waterer showed some vigorous plants of Epigæa repens, that powerfully fragrant little shrub that makes wide mats in shady woods of North America, but seldom, unfortunately, shows the same activity in this country. Another very attractive North American plant, Calypso borealis, a fantastic little spider orchid with twirled wings of purplish pink and labellum blotched like an odontoglossum, was shown by Messrs. Reuthe.

Other exhibitors were:

Carnations.—Messrs. Allwood Brothers and C. Engelmann.

Cinerarias.—Messrs. Sutton and Sons.

Forced Shrubs.—Messrs. L. R. Russell and Stuart Low and Co.

Fruit.—Messrs. Bunyard and Co.

Orchids.—Messrs. J. and A. McBean, Charlesworth and Co., R. Gerrish, H. T. Pitt, and Sanders and Co.

Polyanthus.—Messrs. John and A. H. Crook, K. and E. Hopkins, G. A. Miller and Mrs. Barnard.

Rhododendrons.—Messrs. Hiller and Sons and G. Reuthe.

Shrubs and Alpines. — Messrs. Bakers; J. Cheal and Son, Limited; William Cutbush; Maxwell and Beale; Carter Page; W. H. Rogers and Son, Limited; and Skelton and Kirby.

St. Brigid Anemones.—Messrs. Reamsbottom and Co.

Topiary.—Mr. John Klinkert.

Tulips.—Messrs. Carter and Co.

Violets.—Mr. Baldwin Pinney.

NEW AND RARE PLANTS.

PRIMULA × BARBARA BARKER. — A dainty little hybrid forming a neat, almost a rosette, cushion. For its size it appears very floriferous, carrying ten to twelve flowers. In colour the flowers are pale lilac mauve with a white eye. The flower is very shapely and compact, with the petals close-fitting and overlapping. They vary from ½in. to ¾in. across. This variety should prove of great value either in the rock garden or as a pot plant. Award of merit. Shown by Mr. Clarence Elliott, Stevenage.

RHODOTHAMNUS CHAMÆCISTUS.—One of the most beautiful natives of the eastern and southern Alps, clothing the limestone screes with tussocks of dense tiny shoots covered with their small fringed and hairy leaves of bright green. The plant exhibited showed these characteristics very well indeed, and in addition carried the delicate saucer-shaped flowers of a pure pink colour. Each is carried on a single delicate stem. It is one of the most beautiful inmates of the rock garden, forming cushions of great charm. Award of merit. Shown by Mr. Clarence Elliott.

PRIMULA MALACOIDES GOLDEN EYE—An excellent hybrid of the type species, with a dainty, almost feathery, appearance. It is of compact habit and very floriferous, bearing clusters of white flowers with a pretty golden yellow eye. The petals are rather prettily cut. The flowering stems vary in height from 6ins. to 9ins., and can scarcely be seen when clothed in their mass of flowers, which contrast well with the light green of the foliage. Award of merit. Shown by Messrs. J. Carter and Co., Raynes Park.

CARNATION SHOT SILK.—Blooms of a perfect shape and colour of a twin shade of light and dull red which makes an excellent blend, fully justifying the varietal name. The calyx is firm and shows no sign of bursting in the expanded flower. The petals are regular and prettily crisped. The flowers, which are large—2–3ins. across—are carried well on the rather drooping stems. Award of merit. Shown by Messrs. Allwood Brothers. Haywards Heath.

LACHENALIA GLAUCINA.—A rather dainty species carrying many small pale green to yellowish flowers on each flowering stem, which varies from 6ins. to 9ins. in height. The bells are carried more or less rigidly on the stem, pointing outwards and upright. Award of merit. Shown by the Rev. Joseph Jacob, Whitewell Rectory, Salop.

NARCISSUS PILGRIMAGE.—A fine yellow incomparabilis variety bearing perfect flowers of a pure soft delicate yellow colour. The trumpet is prettily crisped at its outer edges. The blooms are carried well on the long erect stems. Award of merit. Shown by Herbert Chapman, Limited.

NARCISSUS IRENE COPELAND.—This variety carries double flowers of a pale whitish yellow colour, almost transparent. Some of the petals are pale yellow, while others are white. The pale yellow petals are said to become white when exposed to sunshine. It is not a variety which impresses one with its great beauty, the reason probably being the fact that it possesses a double flower, which nowadays is not looked on so favourably as single-flowered varieties. The blooms are well presented on long erect stems. Award of merit. Shown by W. F. Copeland, West Shirley. Southampton.

ORCHIDS.

ODONTOGLOSSUM CLODAGH (Lakinæ Nathaniel).—A showy hybrid with an erect spike of six flowers, all the segments heavily blotched with chocolate-red, the broad labellum displaying more of the white ground than the other segments. From Mr. R. Gerrish, Milford Manor, Salisbury (gardener, Mr. Sorrell). Award of merit.

ODONTOGLOSSUM CORDOBA (eximium × Doris).—One of the best varieties of this hybrid, which was first recorded by Dr. Lacroze in 1918. The spike bore eleven flowers, compactly arranged, of almost solid reddish blotching, the labellum having a broad white margin. From Mr. R. Gerrish, Milford Manor, Salisbury. Award of merit.

CYMBIDIUM VESTA VAR. THELMA (Alexanderi × insigne).—The arching spike of this hybrid carried nine large flowers, all the segments broadly developed, and of a blush-pink tint, the labellum lined and dotted with crimson, the column deep rose colour. From Messrs. J. and A. McBean, Cooksbridge, Sussex. Award of merit.

Gold medals were awarded to Messrs. J. and A. McBean, Cooksbridge, Sussex, for an extensive group of various species and hybrids; and to Mr. R. Gerrish, Milford Manor, Salisbury, for a well arranged exhibit of choice species and hybrids, the excellent cultivation of which was rewarded by a silver Lindley medal being given to the gardener, Mr. W. Sorrell.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

All communications should be addressed to the Service Department, THE GARDEN, 20, Tavistock Street, Covent Garden, London, W.C.2.

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CORRESPONDENCE

MALUS THEIFERA.

SIR,—On page 61 of THE GARDEN issued January 31st appears an interesting account of Malus theifera from the pen of my friend, Charles Leray, telling of the behaviour of this new crab apple in Europe. From the illustration accompanying the article one gets the impression that flowers and foliage are expanded at the same time. If this is its normal behaviour in Europe, then I fear the plant is less ornamental than in a wild condition in China. The accompanying photograph shows how this fine crab apple flourishes in the Arnold Arboretum, yet the picture might well have been taken of the tree on its native heath, so closely does it simulate the habit and character of the plant in a wild state. Some of the branches are from 12ft. to 15ft. long, and from tip to base are thickly strung with blossoms. It fruits in equal profusion. The combined effort, however, has an exhausting effect, and the tree is at its best in alternate years. Unlike many crab apples, M. theifera comes true from seed.—E. H. WILSON.

MALUS THEIFERA IN THE ARNOLD ARBORETUM

ALUM FOR SLUGS.

SIR,—May I please say a few words regarding the alum treatment for killing slugs? Since Mr. Richardson first wrote with reference to the use of alum, I have tried it in several ways, and have found it very useful indeed. I think the following method is the best. Crush the alum to as fine a powder as possible. (If it can be obtained in a really fine powdered condition, further crushing will not be necessary, but the "powdered" alum I have been able to purchase has generally been in a rather lumpy condition), and sprinkle it over the border after dark when the slugs are on the move, choosing a mild night for the purpose. In order to sprinkle the powder evenly, a tin should be used, having the lid perforated with small holes not more than 3-32in. in diameter. When sprinkling the powder some sort of light will be found useful in order that it may be seen how the powder is being spread. A thin sprinkling is all that is necessary, and the number of dead slugs which will be found on a visit to the border in daylight will furnish the necessary evidence of the efficacy of the treatment.—H. R. C., *Wimbledon*.

IRIS TINGITANA.

SIR,—In your issue of February 21st, "B. K. G." asks for the experiences of your readers in flowering Iris Tingitana. So far I have had no difficulty with it. Last autumn as an experiment I sent for six bulbs from Messrs. Barr, and planted them the first week in October. They are planted in the open, in sand and leaf-mould, but sheltered from the north and west by walls and getting a fair share of southerly sunshine. All six bulbs threw up flowering spikes in due course, and the first flower was fully expanded on January 22nd. Since then the rest have followed suit, each stem bearing two lovely azure and gold blossoms. But, from what I am told, unless we get a much warmer summer in 1925 than we had in 1924, the probabilities are that next year the percentage of flowers will be much smaller. Also, I must admit that up to the present we have not had any frost or really cold weather.—E. F. C., *Guernsey*.

IRIS RETICULATA.

SIR,—I have read with great interest Mr. Dykes' delightful article on "Some Garden Iris," but am much surprised at his omission of the lovely Iris reticulata from his collection. It is somewhat fanciful as to the soil it prefers, but, given a light stony soil, it flourishes and increases in an extraordinary way, throwing up its fragrant royal purple and gold blossoms in February regardless of weather. It should be lifted every alternate year in late June, when the foliage has died off yellow, and replanted in August in well dug soil. Many people think it is too dainty in its tastes to appreciate fertilisers, but,

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short of planting in raw farmyard manure, nothing comes amiss to it. Soot, lime, mortar rubbish, superphosphate, fish manure, well rotted stable manure, it eats them all with the greatest avidity and the best results. Care must be taken, however, to give nourishment little and often. The blossoms open in water when gathered in bud, and last over a week in good condition. On the whole it is the showiest and at the same time the most uncommon flower to be seen in the garden at this early season, and, where it thrives, of the easiest cultivation. It is astonishing it is so little grown.—AN IRIS LOVER.

DIGGING AND TRENCHING.

SIR,—The writings of Mr. E. Beckett on anything pertaining to the cultivation of vegetables and the treatment of the soil are read with avidity by thousands of gardeners and allotment-holders. He is also often quoted at meetings of the above. The question at issue on digging and trenching, especially that relating to the bringing of the subsoil to the surface, is frequently debated, and from my own experience there are numbers of cultivators who hold the opinions of "J. H."

Personally, I always advocate great care in trenching, and for safety's sake to keep the subsoil in its place until it gradually becomes in good condition, and then as gradually bring it to the surface. The reason for this is that instances have occurred where the subsoil, having been brought to the surface, nothing would grow in it, at least for a season or two. It is here that I feel it would be good if Mr. Beckett would shed further light on the subject. For instance, what treatment would he give the top spit before cropping, the first season after trenching?

One would also be much interested to learn Mr. Beckett's experience during the first season or two after he commenced his method.

I should only advocate the bringing to the top of the lower spit when plenty of material is assured for working into it, more especially if the soil is of a stiff nature; in this case, if ample supplies of stable manure, lime rubble, road grit, burnt refuse from the rubbish heap, leaf-mould and so on are available, and the work can be carried out in late summer or early autumn, and the trenches left ridged, the soil will then be in good condition for cropping during the following spring, especially if it receives plenty of working previously.—G. H. H.

SIR,—I have just read Mr. Beckett's letter in reply to mine *re double* digging or trenching of heavy clay soils. I draw attention to *double* digging, as I did not in fact mention digging simply.

I trust Mr. Beckett does not think for a moment that I, or anyone else for that matter, doubt his statements as to the results he has obtained by his method of treating heavy land, but what suits one class of soil and locality may and does often fail in another.

My experience extends over nearly as many years as Mr. Beckett's, and it has been my fortune, good or bad, to be mostly on clay, and I have proved by experience that it is a mistake to bring sour, poor subsoil to the surface and expect to grow good crops on it, the first year at any rate.

In the West of Scotland during the past two years, gardeners have had to be content with the *good* ameliorating influence of rain alone, which, as anyone knows, does not do much in the way of breaking up clay even when exposed on the surface.

If one could depend on a week's good hard frost, things might be different, or even a reasonable spell of dry weather; but unless there is unlimited supply of labour, and good opening material to apply to the surface, I find it best to leave the subsoil below; but by all means break it up every year, if possible.

One can hardly accept the fine specimens of vegetables shown by Mr. Beckett as ordinarily grown garden crops. At least ten times the labour must be spent on primary preparation and subsequent attention that any ordinary gardener can find time for: hence my only reason for writing.

Should opportunity offer, I will be most happy to avail myself of the kind invitation to Aldenham, not that I doubt in the least the excellence of the results or the nature of the soil, but for the pleasure of making the acquaintance of such a noted grower of vegetables.

But I still warn anyone to be careful in going too far in bringing barren soil to the surface in the hopes that nature alone may work a miracle and turn it into something better.—J. H.

PLANTING THE WATER GARDEN.

SIR,—May I correct an error that occurs in my article on page 158 of the issue of March 21st, due, I am afraid, to faulty punctuation in the typing of the MS. The words, "The best of them is a wonderful and richly coloured violet. This is one of the species that only gives of its best under moist conditions of the soil," refers to Iris Delavayi and not to I. Wilsoni.

True, Iris Wilsoni also does best in moist soil, but it is yellow, not violet, and, except that the conditions of cultivation are the same and that they are said to cross freely, the two have little in common. Delavayi grows twice the height of Wilsoni and is by far the better plant of the two.—GEO. DILLISTONE.

BLACK CURRANTS.

SIR,—I have been much interested in the notes from your contributor, Mr. G. F. Copley, in the issue of THE GARDEN for March 7th on the subject of black currants I am surprised that he does not mention that super-excellent variety—when it is obtained true to name—the Baldwin. Boskoop will beat it for weight of crop about one year in eight, at all other times the Baldwin is, in my opinion, far and away the best variety in cultivation. The berry is large, the clusters long and it fruits right up to the wood. It is of very strong flavour and therefore valuable for preserving, particularly to the professional jam-maker, and its strong skin enables it to travel long distances and arrive in good condition. Many tons have gone from this neighbourhood (Herefordshire) to Scotland.

One of the secrets of growing this variety to perfection is to give the bushes a little protection during the blooming period. It is almost the first sort to blossom, and the biting winds that are so often prevalent in March have, I think, more to do with a failure than is generally realised by gardeners. This precaution is, of course, impossible on a commercial scale, though simple in a garden, but even so we have scrapped all other sorts here in favour of Baldwin. There is another point that is not generally made enough of by gardeners, and that is the value of strain. Just as in the breeding of live-stock, so in the planting of black currants, and particularly of Baldwins, strain is important, and I would urge upon all intending growers this advice: "Be careful where you get your stock and that it is sound and well grown. Get a guarantee of truth to name, and you will not regret your pains." An example of the value of strain and the way it is appreciated by the professional fruit-grower as distinct from the garden grower is shown by the fact that we have sold close on a quarter of a million Baldwin bushes of our own strain in the last three or four years, and have sent them to districts varying from the north of Scotland to the south of England and from Wales to Norfolk at prices very nearly three times those at which at least three of the varieties quoted by your correspondent were freely offered. —A. H., *Ledbury*.

CONCERNING CYCLAMENS.

SIR,—Is it not rather remarkable that firms specialising in cyclamens do not pay more attention to the scented strain of this plant? That such a strain exists—but is not general—was amply proved by THE GARDEN in an article three or four years ago when it described a noted scented collection of a private owner. I believe Messrs. Barr offered, later, seed from this source, but in their catalogue for this year no such mention is still made. Messrs. Barr, however, make the statement in their seed catalogue that the cyclamen is a fragrant greenhouse bulb. This is a much too generous eulogy, for, speaking generally there is no more sweet smell attaching to a cyclamen flower than there is to the corm from which it springs. So far as my experience and observations have gone, a fragrant cyclamen plant is a rarity. You may go several years and not get one scented plant from a sowing of seedlings or a purchased collection of young plants. On the other hand, one may get a pleasant surprise from any given sowing. I had such three years ago, and the fragrance still persists in the latest progeny. There is no mistaking this sweet attribute, and anyone can easily detect the plant so possessed among a batch of other cyclamen in flower. Not long ago two plants were put in the drawing-room of the manse here—one a scented seedling specimen, the other an ordinary or non-scented plant. The former was soon picked out and commented on, proving that the quality claimed was quite distinct and noticeable. May I mention another instance? Some time ago, looking round a good class garden, I was shown a most sweet-smelling white cyclamen plant, the only such example out of half an ordinary span-roofed house collection. The then head-gardener said he had never possessed the like before. The colour of the flower here is a soft rosy pink. I know of no firm even mentioning fragrance in connection with cyclamen other than the above reference given. Can it be the acquisition of sweetness in this flower is not considered to be, by the experts, a step forward in the all-round perfecting of this plant? If not, why not?—C. TURNER, *Ampthill Park*.

NATIVE PLANTS.

SIR,—You have, Mr. Editor, done well to draw attention to the collection of native plants. I quite agree that many native plants are difficult to establish in gardens. I never try to transplant wild plants found growing on our hills and in the dells, because, from experience, they proved to be very stubborn to establish, in fact, nine times out of ten they absolutely refused to grow. The method which I have found most successful, and give for what it is worth, is to leave the parent plants growing, and, instead, take off a few cuttings. Cuttings seldom fail if treated properly in a cold frame. Strip off a few shoots, tie a little damp moss round them, in this way the shoots will remain fresh until time will permit to place them in a frame. A few years ago I came across a lovely batch of white heather, in full bloom, on one of the hills in Banffshire. Afraid to lift a plant I stripped off two dozen young shoots, took them home and placed them in a cold frame among peat and sand, where they took root and formed lovely plants. From these plants many sprays of white heather have been sent to friends abroad.—GEO. STUART, *Edinburgh*.

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SIMPLE GARDENING

PLANTING GLADIOLI IN APRIL.

THE corms may be planted from early in March to the middle or end of April to secure a long season of resultant flowers. In heavy soils early planting is not advisable, as the corms do not begin nor continue to grow well in such ground. To overcome the difficulty the corms are planted in pots and the growing plants are duly planted out in prepared ground. In nearly all kinds of soil the corms may be planted in April, and it is from these corms that the best spikes are available for shows held during August. Some varieties are earlier-flowering than others, and, of course, these should be planted last. If we take the middle of August as a date when, approximately, the flowers are required for exhibition, such varieties as Pink Perfection, Princeps, Flora, War, should be planted first. A few days later plant Baron Hulot, Empress of India, l'Immaculée, Maréchal Foch, Red Emperor, Yellow Hammer and White Giant. Ten days after the first planting, plant Golden West, Halley, Prince of Wales, America and Panama. The earliest or main spikes will be available first, and from a few dozen corms spikes may be cut till as late as early September.

Gladioli are not really difficult to grow, but they respond to good treatment, producing extra fine spikes and individual flowers. The corms should be planted 3–4ins. deep, each one surrounded by a little coarse sand, and 1ft. apart. Manures used should not touch the corms. Surface mulches are beneficial in hot weather.

PRIMULAS FOR THE GREENHOUSE.

There are many very beautiful families of primulas suitable for furnishing the greenhouse and conservatory, such as kewensis, fine for mid-winter blooming; obconica grandiflora, also for mid-winter, malacoides, for late winter and spring; but I am now referring mainly to the raising of plants of Primula sinensis, as these require rather more care and skill to grow really well. There should be two sowings, one now and a second about the third week in May, not later than the first in June. I recommend pots or pans in which to sow seeds, rather than boxes. Good loam and leaf-soil in equal proportions with a free sprinkling of old mortar rubble makes a suitable compost. Fine sand should not be used, only very coarse, dry sand. Drainage must be efficient, as any stagnant moisture would be harmful to the seedlings. The soil in the pan should be watered one hour before the seeds are sown, cover the seeds with a very thin layer of soil, then place a sheet of glass and some brown paper on to exclude light. As the seeds take a long time to germinate, some much longer than others, very thin sowing is advisable so that the more forward seedlings may be lifted and transplanted without disturbing seedlings just breaking through the soil. The first transplantings should be done round the sides of large pots, not in the centre. The next shift should be single plants in small pots and frame treatment.

VIOLETS; LAYERING AND PLANTING.

There is no better time for layering violets than during the month of April. Old plants growing in frames should be dealt with early in the month and those in outside borders towards the end of it. Of course, suitable runners cannot be grown in one week, they must be selected and taken care of previously. But at this season, on most plants, they are usually plenty to meet the demand. It is not necessary to use any special soil for layering, that on the surface of the bed will do nicely. In the sketch *a* shows a portion of an old plant, *b* the young one nearest to it on the runner, and *c* the end of the runner which would

bear another young, but weakly plant; the stem is cut off at *e* and at *d* a small stone is placed on the surface soil and stem to keep the latter firm till roots are formed. The young rooted plant *f* is shown with both ends of stems *e*, *e* severed. In the meantime the summer quarters should be prepared so that the young plants can be taken to the beds and planted forthwith. Violets thrive best in a cool border and in a position where they will not be subject to cold draughts as the latter soon encourage the spread of red spider. Avoid over dryness. Plants of the double varieties may be divided if there is a lack of runners.

TOMATOES TO FRUIT OUTSIDE.

Although the weather, in some years, is adverse to successful cultivation, nine out of ten amateurs like to try to grow tomatoes well outside every year. During the abnormally hot summer of 1921 tomatoes grew in rows in the open quarters like potatoes and ripened fruits quite early. The plants thrive in heat and a comparatively dry atmosphere. Ordinarily, it is too risky to expose them in open beds. Sheltered positions, such as borders near to walls and fences facing south, south-west and south-east are the ideal ones. Cultivators who do not possess such quarters may make a good substitute by having a row of runner beans north-west to south-east and planting tomatoes about 4ft. away on the side facing south-west. The runner beans form a good sheltering background, and on account of their dark foliage it is generally very warm immediately in front of them. But it is very essential to success that strong advanced plants be available to plant out about June 5th in the south and June 12th farther north. Strong pot plants, judiciously hardened, are suitable, of course. Where it is not convenient to have pot plants, make up a bed in a temporary shelter as follows: First put down a layer of ashes 1in. thick, then a layer of rotten manure 2ins. deep, and finally a nice, rather lumpy compost 4ins. deep. Plant at a distance of 7ins. apart each way. Cover and attend to the plants. When finally planted, each specimen can be lifted with all soil, down to the ashes, adhering, and a check will not occur.

VEGETABLE MARROWS AND FRAME CUCUMBERS.

If small frames are available for placing on the beds containing the young plants, the latter may be planted in their permanent quarters early in May; but as such frames are not always available, the plants must be potted or transferred to boxes and kept in the cold greenhouse or frame till the beginning of June. After the plants have filled their small pots with roots they should be potted on, as otherwise the leaves would soon turn to a sickly yellow and thus lose strength and valuable time. The middle of April is a suitable time for sowing the seeds. Use a mixture of old chrysanthemum soil and leaf-mould; place one seed in a 3in. pot and, if necessary, repot into a 6in. one rather than starve a healthy seedling. In the meantime, prepare the summer bed for the plants, not a heap of litter with a thin layer of soil on the top, but a flat-topped bed about 1ft. high and composed of rotted manure, decayed refuse from the garden heap and ordinary soil. In such a medium the plants will thrive and hold out in hot weather. Frame cucumbers may be grown without a hot-bed; but the fruits, if a long time swelling, are frequently bitter. Litter and tree leaves, or even the latter alone, form a nice hot-bed on which to place a frame. At first, light friable soil to a depth of 9ins. should be placed all over the bed, and due top-dressings applied later. Till the middle of June mats should be laid on the glass every night.

GEORGE GARNER.

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THE SIGNIFICANCE OF LEAD ARSENATE SPRAY

ITS UTILITY AND ITS DANGER.

"WHEN the petals are falling, spray with lead arsenate sprays," says many a treatise on the destruction of fruit pests. That is advice which, judiciously followed, will put a prompt end to the career of armies of tiny grubs which, left to themselves, will find a snug retreat in the cores of fruits with ultimate results which are too familiar to require description.

It should be unnecessary to warn owners of fruit trees that the open winter has once more given an easy hibernating period to the pests which plague the gardener and play havoc with the occupants of the orchard and their crops. Some have sprayed once with some sort of winter wash, some have made a second effort with lime sulphur, others have not sprayed at all, and it is to these latter that a message of urgency is specially directed, for here is another opportunity, and, so far as certain very troublesome grubs are concerned, it is the final chance of the season for an effective onslaught.

The codling moth is a very prevalent pest throughout the orchards and gardens of the British Isles, and it is something of a reproach that this destructive pest has not yet appreciably diminished in numbers and virulence, for it is far from being the most difficult of pests to deal with. Several means of destruction are at the service of cultivators which may be termed alternative measures, but would more properly be brought into co-operative action as will here be explained.

There can be no doubt that an acquaintance with the character and life-history of a pest greatly assists in ensuring success in efforts to combat and annihilate it; therefore our first step shall be to study the codling moth and its larva or grub.

Carpocapsa pomonella is the scientific name for the moth, which is of moderately small size, the expanded wings measuring about three-quarters of an inch across, while the body is just about half that length. The antennæ or horns are one-sixth of an inch, spreading almost horizontally with sharply incurving points.

The dominating tint of the forewings is an earthy grey, with dark blotch at the shoulders, and faint transverse, waved stripes of light grey and creamy white variegating the outer half of the wing. The underwings are a dull gold or russety orange, the extreme edge being regularly scored with parallel white marks of hair-like fineness. The grub is of a dirty ivory tint encircled by deeply impressed rings, the head being dark glossy brown.

About the latter end of May the moth is in flight, and is very industrious, flitting from cluster to cluster of the newly set fruit, depositing one egg on each fruit. The apple is a favourite host, but pears are also subject to attack.

It takes but a few days for the eggs to hatch, and the diminutive grub immediately gnaws a tiny tunnel to the interior of the fruit, there to fatten itself upon the softest pulp around the core-walls. Within a month the grub is fully grown, when it travels to the surface of the apple or pear, spins a silken thread by means of which it drops to the ground. The next manœuvre is to seek a cosy crevice in some abrasion of the bark of the tree trunk, or under a covering of lichen or algæ, and there pupate until the following May, when the perfect moth appears to commence a fresh cycle of life.

The opportunity for catching the pupæ unawares with caustic washes is past, hence the importance of waylaying the larvæ immediately they are hatched, and before they can gain access to the interior of the tiny fruits. This is the object of spraying with lead arsenate wash, the importance of promptitude surely being perfectly obvious. No spraying can be done while the trees are in full bloom, but as soon as petals have fallen the spray should be upon the trees. The date of arrival of the moth is not to be definitely foretold, but as lead arsenate is a virulent poison which will retain its power for a long period, it is prudent to ensure being in good time.

Lead arsenate is produced by combining acetate of lead with arsenate of soda, but as these are deadly poisons, and capable under careless handling of grave mischief, no recommendation will be made that the spraying compound should be manufactured at home, nor is there the slightest necessity that it should be attempted, for there are abundant proprietary brands of lead arsenate paste on the market made by such highly reputable firms as Lewis Berger, Voss, Strawson, Murphy and others which simply require the addition of water to make them ready for use.

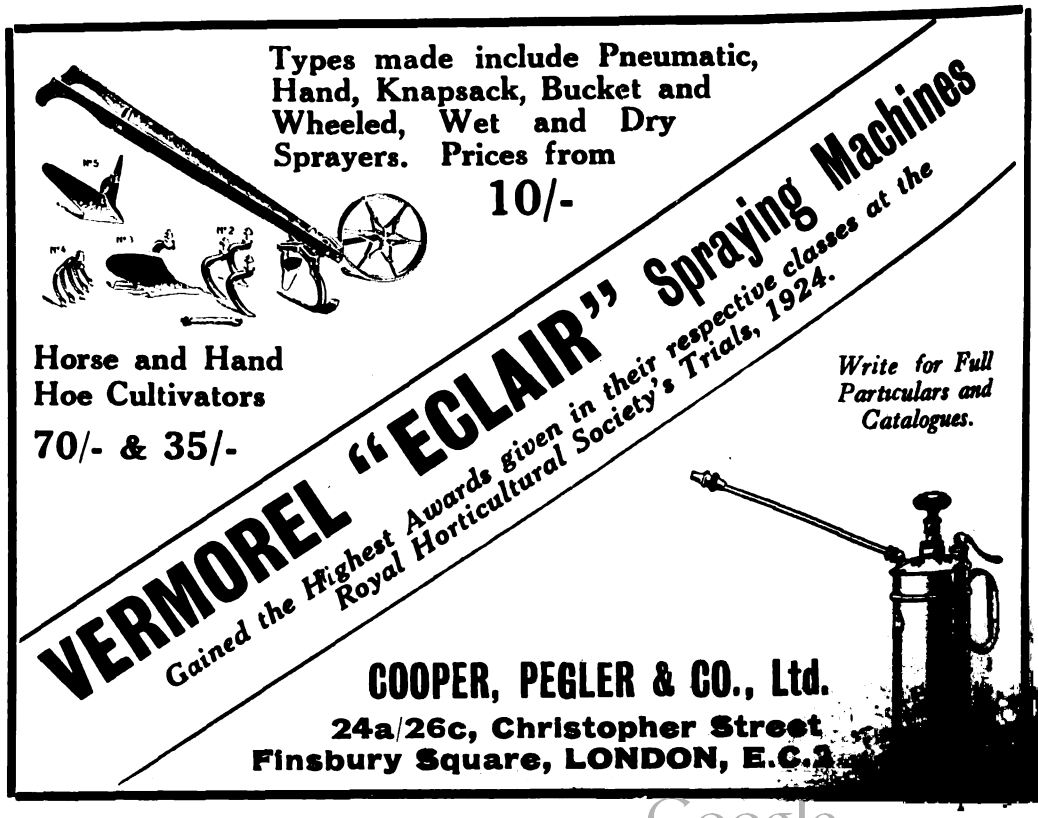
One does not idly recommend the use of virulent poisons, but the scourge of destructive fruit pests is so serious that no available means of real destruction can be ignored, and the vital necessity is that all owners of fruit trees should do their duty in the interests of neighbouring growers as well as themselves, for it is only by concerted effort that the plague of the codling moth may effectively be trampled underfoot. It is equally necessary that the operator shall be alive to the danger attaching to careless handling of poisonous sprays.

It is no task for the garden boy, and adults should realise that no food crops, such as lettuce, cauliflower or other greenstuff, should be allowed to receive the slightest particle of the solution, therefore spraying must be done only on windless days. Wear gloves and otherwise take rational precaution against bringing lead arsenate or other such poisons into contact with persons or foods.

The codling moth is by no means the only pest for which this powerful spray is a deadly weapon. The currant moth, the gooseberry sawfly, larvæ of winter moths which were not caught by grease-banding succumb to lead arsenate, but although its power is such that it would be a wonderful weapon for use throughout summer, its virulence prompts the counsel that its use should not be extended to the period when varied crops are maturing for use. With caution there is safety; those who cannot exercise care even with poisons should never be allowed to deal with food crops.

Mention of grease-banding recalls the fact that many larvæ of the codling moth have been caught by their aid. It frequently happens that the mischief caused by the grubs inside growing apples causes the latter to fall prematurely. The grubs in the fallen fruit soon work their way out and commence to re-climb the tree trunks. A freshly smeared greaseband around the tree trunk, not too high, will arrest the progress of the grubs and capture them. From late May to July covers the period during which greasebands for this purpose should be kept frequently freshened by re-smearing with grease.

L. I. ATRIS.



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THE SOURCE OF PLANTS

AT this time of year I should give a dissertation on the joys of spring; if I could, I should write a thrilling and, perhaps, grilling account of a garden at Timbuctoo. And yet, pleasant though heat may be, it is not really good for gardening. Gardens in the tropics on a whole are poor things. In Java, for instance, the only flowers that I can vividly remember as inhabitants of gardens are cannas, gardenias and various members of the large family of convolvulaceæ. They are bold and flashy in flower, like some overdressed dowager, but they are unsatisfactory from the æsthetic point of view; there is nothing personal or affectionate about them. They are all too fat or too luscious; they either smell too much or not at all. I remember arriving at a hotel in Java, I think it was at Djokjokarta, and choosing a bedroom because outside the window there was an enormous bush of gardenia in full flower. It must have been 10ft. high and 8ft. through, and every morsel of it smothered in bloom. This thrilled me and I imagined the night air made fragrant by the smell of these hundreds of blossoms being wafted into my room. So heavy and sickly was the air that I woke up in the night with a headache, knocked over the candle in looking for the matches, trod on a cockroach while looking for the candle, disturbed a praying mantis at his devotions on the verandah, and so shattered any romance that I had regarding the gardenia. I now look upon it as a buttonhole flower, and look upon masses of it from a distance.

A friend of mine once told me of his first sight of a big rafflesia—I think it was in Sumatra—an enormous purple cup, like a gigantic crocus, rising from the decaying trunk of a tree. It looked weird and rather beautiful at a distance until on examination he found that the petals were so fleshy and smelled so much like carrion that they were riddled with fat, squashy-looking maggots. And so is romance in tropical flowers usually destroyed. They are gross and rather bestial.

The same thing happens when temperate flowers are grown in the tropics. Those that have any individuality worth talking about refuse to grow; others lose their delicacy and fragrance and become overfed and coarse. There is little doubt that the fight for life against odds makes for individuality and elegance and good breeding. Whenever a plant finds life too easy it becomes rank and gross. We hear of all that is best in China—the rhododendrons, primulas, meconopsis—but we never hear of the ragtail and bobtail's of the Chinese flora, of the masses of coarse rubus and heracleums and senecios and saussureas and impatiens which tousle many a fine landscape with their coarse growth. In the tropics all plant life is easy, if the plant will grow at all, which makes for uninteresting flora and horticulture.

With all our difficulties in the way of climate, gardening at least is fascinating in this country. The element of doubt and the gamble on an unknown horse satisfies our adventurous spirits, but, if only the origins of plants are traced to their sources, look what a wonderful world tour lies before us: Berberis Darwinii and fibrous-rooted begonias from the Andes, mimosas and gums from Australia, Plagianthus Lyalli from New Zealand, gladioli from South Africa, cherries from Japan, primulas from China, rhododendrons from the Himalayas, orchids from the Amazon, peaches from Georgia, heaths from the Mediterranean, gentians from Switzerland, azaleas from the United States. Their variety is unending and the interest is immense. And yet how few gardeners realise the fascination of tracing plants. Their desire begins and ends in the knowledge that a plant came from a reliable source, that it is the right colour, and that it is easy to grow. There is a great deal of romance hidden in the introduction of plants, and in addition, as I have pointed out before, there is the added advantage of finding out something about a plant's mode of life. There is sure to be some book of travel in the library which will describe the climate and appearance of a country even if the collectors omit to do so. For instance, I should advise all who are interested in plants from Yunnan and Szechuan to read "Three Years in Western China," by Sir Alexander Hosie. He only mentions economic plants, but gives a description of the country which is eminently practical and readable, and which will be found exceedingly useful to anyone who intends to visit that part of the world. Similarly, we have numerous volumes dealing with other countries from a geographical standpoint which are both interesting and full of instruction.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

SHRUBS FOR THE ROCK GARDEN—II, by Dr. R. Lloyd Praeger.

PLANT HOLIDAYS, by H. Stuart Thompson.

THE SELECTION AND MAINTENANCE OF LAWN MOWERS.

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DWARF SHRUBS IN THE ROCK GARDEN—I

BY DR. R. LLOYD PRAEGER.

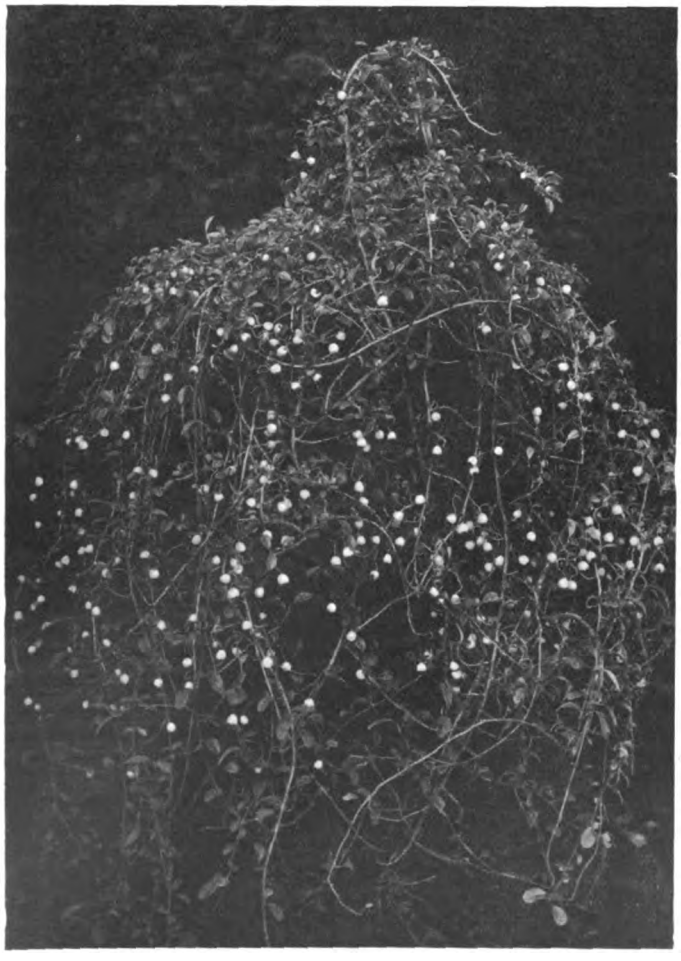
DWARF SHRUBS OF ALL KINDS SHOULD FIND A PLACE IN THE ROCK GARDEN, NOT ONLY BECAUSE OF THEIR EFFECTIVENESS IN WINTER BUT ALSO FOR THE CONTRAST THEY AFFORD TO MANY FLOWERING SUBJECTS ALREADY THERE.

THE use of dwarf shrubs among the boulders and slabs of stone and the cushions and carpets of greenery that together form the essential features of the rock garden is general, and, when properly directed, advantageous. It is only in a small degree logical, as very few of the shrubs which we employ for the purpose are natural inhabitants of either alpine heights or rocky places. But in the rock garden we usually strive to break up into ridges and hollows and sheltered nooks what might otherwise look merely like a slope artificially strewn with stones. This is, of course, most fitly done by the rocks themselves, but very few of us can emulate Edinburgh and import two-ton blocks to produce an effect of pinnacle and recess; and here the dwarf shrub is of great assistance.

Then again, shrubs are much more useful than rocks to give shelter—just as a hedge breaks the wind while a wall only produces eddies. And a rock garden is, in spite of all our efforts, in reality such an artificial thing that the presence of alien shrubs does not make it more so. Thus we may justify the use of the shrub which forms a mound or pyramid of foliage. There is another important group of shrubs which are prostrate, spreading over the ground or falling in cataracts over rock-faces. These really take a place among the rock plants themselves; their growth and their use are similar to those of many pinks and thymes, arabis, aubrietia and so on. And perhaps we might make a third category to include the really tiny shrubs, like cassiope, bryanthus and the smallest of the willows and veronicas, which also we use as we would an alpine plant.

Taking together the dwarf trees, shrubs and sub-shrubs which, under various circumstances, it may be advantageous to use in the rock garden, we have quite a considerable army, allowing us a wide range of choice—tall, or short, upright or creeping, dense or slender, evergreen or deciduous, with leaves and flowers of every shape and colour. It is impossible to arrange them in any natural sequence, and for convenience we shall use the rough growth-form classification already sketched. We may begin with the smallest examples, as these for practical purposes come nearest to the rock plants themselves.

A DWARF SPECIES FOR THE ROCKERY, RHODODENDRON INTRICATUM WITH LAVENDER BLUE FLOWERS.



ONE OF THE MOST DISTINCT TRAILING SHRUBS OF RECENT INTRODUCTION, COTONEASTER HUMIFUSA.

Cassiope is a genus of about a dozen tiny heath-like plants, a few inches high, with minute, often adpressed leaves and single white or pink bells like lily of the valley. They are mostly difficult, for they come from high alpine or arctic places and need a cool damp soil and climate. C. tetragona is much the easiest, and often does well in a shady, peaty, well drained spot.

Phyllodoce (or bryanthus) also belongs to the ericaceæ, and is a small group of delightful tiny shrubs with clusters of white or pink hanging bells. P. empetriformis is the most satisfactory in the garden, with little yew-like leaves and abundance of rosy bloom. Like the last, it must have a lime-free, moist soil, and is fond of peat.

Loiseleuria procumbens, the "mountain azalea," is the tiniest of all: a minute creeping shrublet not uncommon in the Scottish Highlands, and widely spread over alpine and Arctic Europe. Its dark evergreen leaves and erect rosy bells are very pleasing. The species of the three genera so far named, all need the same treatment, and all are difficult in southern England; in the north of Scotland probably all would do much better.

The gaultherias are also ericaceæ, and also like peat and shade. They are pretty evergreen low shrubs with bell-shaped blossoms not very conspicuous. G. trichophylla and G. nummularioides are quite small, only a few inches high, spreading by underground shoots; G. Veitchiana is pleasing, and larger in size; G. Shallon is rather rampant for the rock garden, and suits the woodland better.

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Even yet the list of small ericaceous gems is not exhausted. There is Bruckenthalia, a delightful evergreen shrublet with heath-like leaves and rosy bells, quite easy in a light peaty soil; Vaccinium Vitis-idæa, the native cowberry, makes a healthy evergreen clump with small pinkish bells; and, finally, there are the dwarfer heaths and rhododendrons. Of the heaths, the well known E. carnea in its various forms is quite invaluable, growing in any soil and almost any situation, and flowering in profusion before even the Kabschia saxifrages venture to push timidly forth. Some of the many forms of the ling, Calluna vulgaris, are dwarf enough to come into the present category —such as vars. aurea, Foxii, minima and tenuis. Of the dwarfest of the vast army of rhododendrons I cannot speak from personal experience, as I have never had a suitable soil for them. Even where this exists, I fancy they do not prove over easy; but they are very lovely things, and—never venture never win. The smallest species includes R. intricatum, R. kamtschaticum, R. prostratum, R. Williamsianum, R. Sargentianum and R. impeditum. It will be seen that the ericaceæ alone supply a whole series of tiny shrubs, most of them of great beauty, and many of them challenging all the resources of the gardeners' art.

A number of other ericaceous things will need mention when we come to the less tiny rock garden shrubs. Of other small shrubs that take their place among the tuft-forming rock plants we have Spiræa decumbens=(S. procumbens) and the closely allied S. Hacquetii, neat little deciduous bushes with flat panicles of white flowers; Hypericum fragile and H. olympicum, with low mounds of glaucous foliage and a glorious wealth of golden bloom in summer; the pretty H. Coris, with smaller leaves and flowers; the tiny and delightful H. cuneatum, with scarlet buds; and so on. There are tiny veronicas, such as V. salicornioides and V. loganioides, like little heaths or cypresses; lovely small daphnes—D. Blagayana, D. petræa, etc.—over which one may lavish much care; various bushy thymes, which need no care at all; and those two excellent minute shrubs, Polygala Chamæbuxus from the Alps, and P. Veyredæ from Spain, which Dr. Stapf considers should be placed in a separate genus and called Chamæbuxus alpestris and C. Veyredæ; and we may finish up this section with that miniature hedgehog, Erinacea pungens, which needs a hot dry corner.

Turning now to trailers and prostrate small shrubs, we may mention first some *quite* prostrate ones, which form little green lakes or waterfalls in the rock garden. One of the loveliest of these is Hypericum reptans, with its great golden blossoms lying on bright green foliage. Linnæa borealis is a most dainty trailer, with twin flowers like little bells—it likes peat and shade. Coprosma Petriei forms a close green mat, very different from the others of the genus. The well known Polygonum vaccinifolium is invaluable, covered with erect spikes of pinkish bloom in autumn. Dryas octopetala, with its delightful big white and gold flowers, is too well known to need more than mention. Daphne Cneorum is (or ought to be) grown by every flower-lover. Empetrum nigrum, the native crowberry of our heaths, makes a fine carpet, but as in Coprosma Petriei the flowers are insignificant. Then the invaluable ericaceæ supply several good carpeters, two native plants, the bearberry, Arctostaphylos Uva-ursi (for dry peat), the tiny cranberry, Oxycoccus palustris (for damp peat); also the may-flower of North America, Epigæa repens, which many gardeners find as difficult as the last two are easy. Some of the alpine willows, too, like Salix reticulata, S. retusa, S. herbacea, are very flat and very pleasing. To come to things that are not quite so carpet-like, the dwarf cotoneasters are hard to beat, with their red berries and leaves colouring in autumn. C. humifusa is the most close-growing of them, and C. adpressa, C. congesta and C. thymæfolia are all first-rate. Lithospermum prostratum needs no praise here, nor the dainty var. prostratus of the rosemary—but this is not over-hardy in some districts. With the mention of some of the beautiful prostrate junipers, like J. Sabina var. humilis and var. tamariscifolia, and that quite prostrate native form which is the J. communis var. nana of botanists but apparently not of Bean's "Trees and Shrubs," we must pass on.

DAPHNE PETRÆA WELL REPAYS A LITTLE CARE.

A WANDERER'S NOTE BOOK

A NEW STATION FOR AQUILEGIA ALPINA.

BETWEEN 7,000ft. and 8,000ft., near the base of the limestone precipices that overlook one of the valleys near the Bernina Pass where you cross from the Engadine into Italy, I was tracking down two primulas, late as it was in mid-July, in the hope that a belated bloom or two might cross my path. The hope was, *mirabile dictu*, fulfilled. Satisfied, I commenced the descent across and down a limestone scree, devoid of all vegetation, that was far-flung from the base of the precipices to the edge of the valley stream hardly discernible far below. Amid this unlikely desolation I stumbled into a small patch of a dozen or so of the alpine columbine. I had failed a day or two previously to light upon the columbine in the entrancing (and to the flower lover doubly entrancing) woods that clothe the south side of the Lake of Sils, and had been unimpressed by the withered blooms that still hung their weary heads in the "Alpine Garden" of Sils-Maria itself. The discovery, therefore, on a high bare scree, in inimitably superb form, of what the prophet of rock gardening called unquestionably the most beautiful plant of the European Alps, was the more unexpected. It then occurred to me that where there were a dozen it was most probable that others would be also; and looking around I descried on the far side of the scree a field of blue, so blue and such a field that in the succeeding days, when one knew where to look, the dark patch on the mountain side was visible from the train as it passed the valley mouth over a crow's mile away.

The field of blue consisted, indeed, of close-packed Aquilegia alpina, at the acme of its perfection—but a bud or two unopened, not a bloom yet flagging. Lugubrious spirits at the Pontresina hotel had informed me that the Swiss soldiery stationed on this frontier during the war had dug up all the aquilegia in the Engadine (I could not think why; were they enraptured into attempted transplantation to their homes, or did they found my colony, near their outposts on the Pass?). A few plants, they said, might still be found in the woods at the base of the Roseg Glacier. To hearten these damp enthusiasts I collected a bouquet of a hundred or so spikes (only to be threatened with arrest by the Cantonal authorities for preventing the seeding of so rare a flower). Which done, I became cool enough for a cold calculation.

The completely blue patch—so blue as to hide at a few yards' distance the coarse white limestone blocks which were the strange compost of the presumably mossy wood-loving columbine—measured 44yds. long by 26yds. broad.

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Allowing for a clear circle of 6ins. from stem to stem—though for the most part bloom touched bloom—there were in that patch over 40,000 spikes in full bloom; and nearly every spike (15ins. or 18ins. in height), carried three large flowers. The scree faced north. No other vegetation grew upon it. It was sheltered only from the grilling midday sun by the mountain ridge behind. It lay open to all the winds that blew.

All records give A. alpina (as other aquilegias), as a woodland plant. The localities given are "rocky, bushy places," or "the lower light scrub of alpine woods." I read that the alpine columbines "lodge behind bushes on their native hills" and "dislike being battered by winds and weather when coming up." I am enjoined, if I wish to obtain the one—or two—year old plants that alone are worth collecting, to lay my length among the scrub and peer through the herbage, the older plants sending down through deep moss their intractable 2ft. stocks before the fibrous roots splay out. The authoritative prescription for cultivation—"very spongy rich woodland! mixture never parched by sun or worried by wind"—is based on the essentially woodland nature of its best known habitat.

Cultivation in England has proved difficult. Mr. Farrer indeed found it not one of the most difficult, but needing care, especially in the south. He also found that it lost its size in cultivation, and its dazzling blue sank into a steely indigo. The only reliable course for the would-be grower is to collect seed or seedlings with his own hands. What would be the result of an unorthodox treatment based on its brilliance on an unorthodox bare scree? There, at least, the columbine silenced criticism. My collected bouquet lasted well in water, and the wild thought occurred: what a vogue A. alpina would have with the florists could anyone in England coax it into the vigour, floriferousness and beauty of the Bernina colony.

When Mr. Lofthouse saw it (THE GARDEN, 1923, page 662), in its well known home on the south side of the Mont Cenis lake, the blue of its flowers did not come up to his expectation (though admittedly it was somewhat past its best). One had been led, he wrote, to expect a pure sky blue flower in place of the somewhat purplish blue flowers which he found. Purplish! Say rather a soft, clear, deep powder blue. But on the Mont Cenis Mr. Farrer could not resist a qualm as to its form. "Memory is proverbially an excitable thing," he wrote; "yet I cannot but feel that the rarer A. alpina of the Bernese Oberland and the Valais is a trifle larger in flower, solider in substance and more brilliant in the tone of its blue. . . But pure sky blue? The blue of A. alpina is the deep, atmospheric blue on the mountains on a day of racing cloud.

THE SOFT CLEAR BLUE FLOWERS OF AQUILEGIA ALPINA.

LILIUM BULBIFERUM.

My botanical vade-mecum tells me that a botanist by name Chaix, bestowed the specific distinction "croceum" on that form of the Lilium bulbiferum of Linnæus which does not produce bulbils in the axils of stem and leaves. Otherwise I had almost written that bulbiferum was the bulbil-bearing variety of croceum, for croceum is numbered by tens of thousands and bulbiferum by tens only in the thickly-populated dwelling places of this lily. During his wanderings in the Cottian and Maritime Alps, Mr. Farrer stated bulbiferum to be common (though no less beautiful for that), and cheaply obtainable at home. Without further evidence, however, than his book supplies, I am not convinced that he was referring to bulbiferum as distinct from croceum, and in how many catalogues is bulbiferum offered? The gardener who is a live wire ever strains after the best, yet while croceum is a household plant, bulbiferum is a comparative stranger. Granted that in ease croceum is second to none, bulbiferum, also, I am assured, is good and amenable (though "amenable" may have a catch in it, suggesting "amenable to what?"). Bulbiferum's bloom is of a more brilliant red—less flushed with saffron than croceum's orange cup. It is taller, larger in up-standing bloom, carries half a dozen resplendent chalices on each stem to croceum's one or two, and is, in all, so robust as to suggest, not a varietal relationship, but the same plant in a form so vigorous as to be able to reproduce itself by means of the bulbils of the stem which the dwarfer, weaker, less resplendent croceum fails to materialise.

E. ENEVER TODD.

SNAPDRAGONS

SMALL wonder that antirrhinums are popular favourites for bedding and for massing in the foreground of the herbaceous border, for they possess an exceptional number of good points, every one of which is desirable in the plants used for a brilliant summer display. Sturdy and neat, yet not strictly formal, the plants require but little staking or tying except it be the tallest varieties when planted in wind-swept situations. Their hardihood and wonderful immunity from diseases and pests is no small recommendation, and their untiring energy in producing an unbroken succession of flowers for twelve, thirteen and even fourteen weeks is in itself an all-sufficient reason for making great use of them wherever inexpensive occupants of large beds are required.

The custom is to classify antirrhinums in three groups—tall, intermediate and Tom Thumb—but their present-day character necessitates a re-arrangement, for we have real Tom Thumbs which make dense cushion-like plants only 6ins. high, dwarfs from 12ins. to 15ins., intermediates from 18ins. to 24ins., and tall varieties which grow from 2½ft. to 3½ft. The last named produce wonderful spikes of bloom, and compare with lupins for stately effect. The intermediates are of all-round utility, the dwarfs being particularly well adapted for small beds or narrow borders, while the Tom Thumbs provide excellent material for edging large beds to give them a neat and pleasing finish.

Of this last section the colours available are yellow, crimson, rose and white, but of each of the other groups a wide range of colours is open to choice.

"Which is the best antirrhinum?" The question has frequently been asked, but there is no best except to those

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whose judgment is biased by a special fondness for one colour and lack of appreciation for some other colour.

Yellow flowers appeal to many, but there are some who dislike yellow. Golden Gem is rich and bright, the habit of the plant being intermediate, seldom exceeding 1½ft. in height; but Yellow King is taller by a foot, very clear, and produces fine spikes. The height indicated is the result of quite ordinary cultivation. Growers for exhibition who feed liberally, and also disbud, produce very much taller spikes than 2½ft. About the tallest variety thus far is Monarch, and it is a very fine flower, deep velvety crimson, of splendid size and well set on strong, tapering stalks. Four feet is quite easily obtainable, and really well grown plants of good stock have beaten that by many inches. It may be remarked that such height is quite unnecessary in a bedding plant; admittedly that may be so, but often for the back of a border, for bold, outstanding groups at intervals, and for the back row vases of an exhibit, height, with corresponding massiveness in spike, is sometimes a distinct advantage.

Warrior is perhaps even deeper in colour than Monarch, and it also will grow about 3½ft. in fine style, the individual blossoms being very large, with a waved standard.

Among intermediates there is small need to go beyond a good stock of Empress for a crimson, but it needs to be a good stock, otherwise there may be some little erratic behaviour in regard to colour. Black Prince had a good run, but it is not really a first-rate flower, sears very quickly, and throws a large proportion of scrappy spikes. Its habit is somewhat spindly, and many growers have now discarded it.

Mrs. R. F. Felton is a brilliant flower of wonderful size and arresting colour, and as a scarlet self is very valuable. Its height is about 2ft., and habit is bushy and free. Dobbie's selected stock of coccinea is of bright colour, but the flowers are individually smaller than those of Mrs. R. F. Felton, which is one of Simpson's of Birmingham. The same firm has given us a fine variety in Appleby Matthews. The colour may be described as orange overlaying terra-cotta with a flush of yellow on the frill and a white tube. It belongs to the 2ft. intermediates, and is one of the popular tribe of flame-like varieties which are strikingly effective at a distance. Our Prince is of very similar character, except that it is tall and may outstrip the frequently eulogised Torchlight, which is another of the flame-coloured group.

Apricot and peach shades are of unique charm, and both Prima Donna and The Fawn hold their place in the popular affection, and deservedly so, for they are most delightful flowers, The Fawn being of beautiful shape as well as colour. A new variety of Simpson's is destined to make a strong assault upon the stronghold of these two favourites. It is slightly more pink in its shading, but apricot salmon conveys a good idea of its colour, and although nearly 2ft. in height, it is sturdy enough to enable one to dispense with staking when it is massed in a bed.

In whites, Queen Victoria is a tall grower, Purity is a really good intermediate, and White Queen is serviceable where almost a dwarf (not much over a foot) is required.

There are many pink antirrhinums, but the majority of them have white tubes, and that is somewhat of a drawback in the lighter shades. There is, consequently, an assured welcome for Charm, a real pink self of capital quality. Gloria is a rich rose pink; and in carmine we have Carmine Queen, a beautiful intermediate, and Carmine King, a tall variety in the same colour.

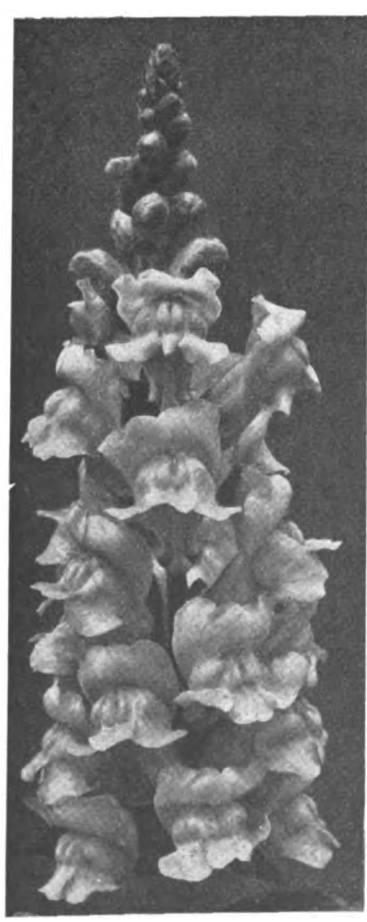
This list by no means covers all the desirable antirrhinums, but Afterglow, Bonfire, Fascination, Sybil Eckford, Silver Queen and Maize Queen have so many times been described and, after all, the best effects are not usually obtainable by using too many colours in close companionship.

So far as planting is concerned, three points should be observed: afford ample room, plant with a trowel—not a dibber—and press the soil very firmly to the roots. The best results are obtainable when the soil has been well cultivated, deeply dug and well manured for a previous crop, but not freshly manured for the antirrhinums. Feeding may then be commenced in the form of surface dressings of a good guano or phosphatic manure as soon as the first signs of buds are noticeable.

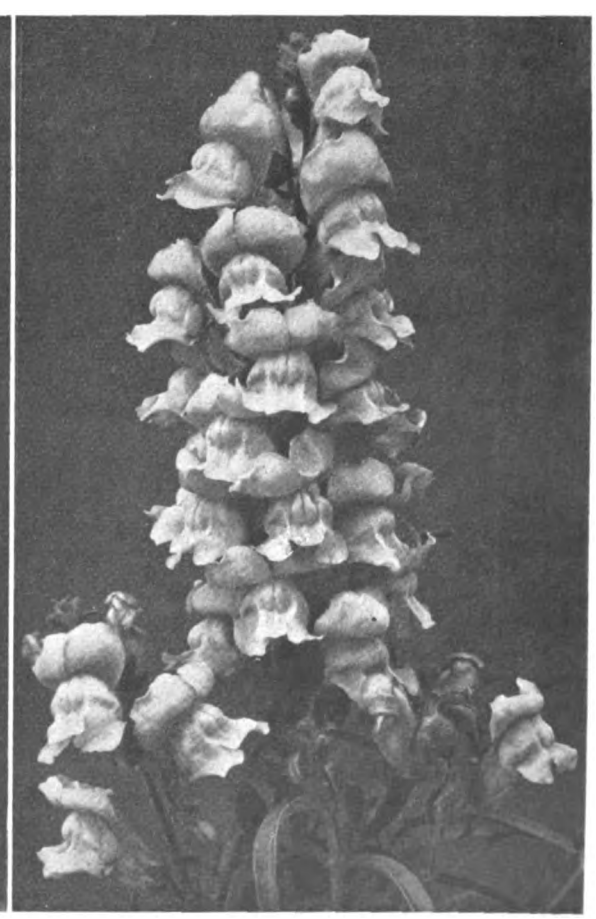
It is much to the benefit of antirrhinums that the first spikes of bloom shall be cut while young, and thenceforward throughout the season seed-pods should be sought and picked off daily. In preference to continuous watering a mulch of light, loose litter will be of great advantage during periods of drought, and as the season advances any plant which appears to be wavering should have its leading branches shortened back to induce fresh growths to break from the base.

The production of spikes for exhibition in cut flower classes involves a certain amount of pinching lateral growths. This should be done on the principle of "little and often," nipping out a few shoots here and there on a plant almost daily rather than severely reducing the growths in one operation, the latter course having a tendency to cause fasciation and irregularity of development through too sudden a diversion of sap through the few remaining channels.

There can be no doubt that for good bold effects in "group" exhibits nothing beats lifting whole plants and wrapping their roots in moss, as this enables the natural character of the plant and its foliage as well as flowers to be displayed. For such exhibits pinching or disbudding is unnecessary and undesirable, for the quantity of bloom will create a better effect than fewer long spikes can do. Before the plants are lifted the ground should be thoroughly drenched, then allowed to drain for a few hours, and after the roots are wrapped get the moss-balls into a shallow tank of water for an hour, and the plants will be good for a two or even three days' show.



PRIMA DONNA.



A GOOD SPIKE OF CRIMSON GLOW.

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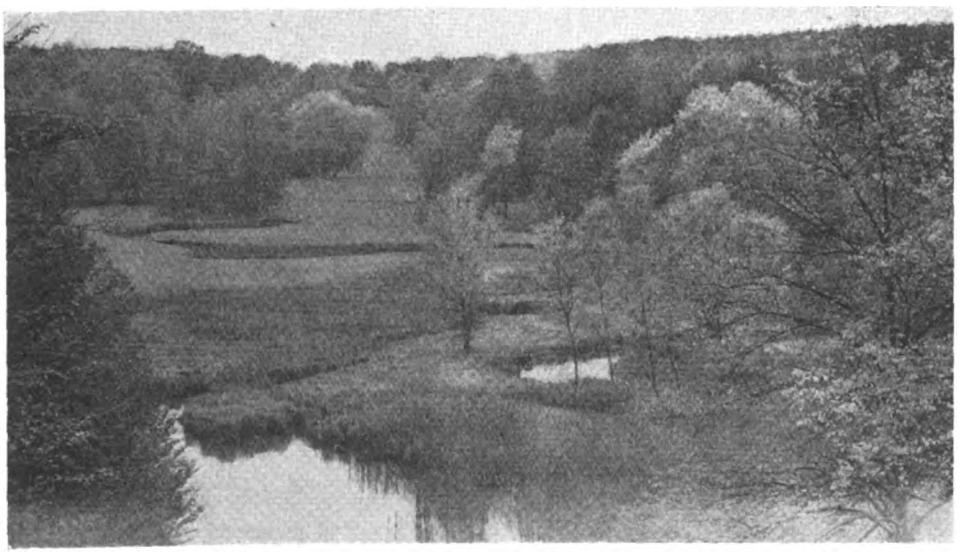
PRUHONICE, THE FAMOUS PARK IN BOHEMIA

AS ONE OF THE LARGEST OF MODERN PARKS, PRUHONICE RANKS HIGH FOR ITS VARIATION OF CHARMING NATURAL SCENERY CREATED FROM MODERN IDEAS OF LANDSCAPE DESIGN, AND ALSO FOR THE FINE COLLECTION OF TREES, SHRUBS AND ALPINES.

THE best-known representative of a naturalisitic style of landscape designer in Central Europe is Prince Pückler-Muskau. During his frequent and long visits to England at the beginning of the last century he became deeply impressed with the landscape style used at this period, and especially with the classical works of Repton. On his large estate at Muskau on the Neisse, in a rather poor part of Germany called the Lausitz, a little north of the large town of Görlitz, he, in 1815, started to carry into effect the impressions he received in England. But he was in no way an imitator; he was a great but somewhat queer personality of a high artistic standing. As his little booklet, "Andeutungen über Landschaftsgärtnerei," clearly shows, he had "a conception of naturalistic design which worthily matched the work of Repton and Price." He was not the first and only one who accepted the ideas of landscape creation of the end of the eighteenth century. C. C. L. Hirchfeld in his fairly comprehensive work on the theory of landscape design (1779-85) had already preached this gospel. He was the real pupil of Pope and Brown, and his book is full of the romantic schemes of his time. What Repton did in England, Sckell, the creator of the English Garden at Munich, and Prince Pückler did for a more rational development of landscape gardening in Germany. Pückler's work at Muskau is still well preserved. The place now belongs to Count Arnim, who, with the assistance of Mr. R. Lauche, takes the greatest care of it.

But, after all, Muskau does not and cannot show the German ideas of a park of the twentieth century. Those modern ideas of a naturalistic scheme of park design are, in my opinion, best represented by the work of Count Ernst Silva Tarouca at Pruhonice, near Prague, in Bohemia. This famous park, of which the young Czechoslovak Republic ought to be very proud, is still too little known even in Germany and in England. Count Silva is a born artist with regard to landscape design. As the owner of a great estate he commenced his work in 1888 without any knowledge of the great English parks, or even the work of Prince Pückler. He was an enthusiastic sportsman, and on his hunting trips he became well acquainted with natural scenery, and with the trees and flowers of Central Europe. On his own grounds he found everything he needed to develop and create landscape effects in the grand manner. Nature's striking examples did, however, serve him as inspiration. He was sensitive enough to feel what characters were latent in the natural scenes with their hidden beauties on which he was called to work.

VIEW FROM THE CASTLE TO THE SOUTH OVER THE "SCHLOFSTEICH."



ONE OF THE BEST VISTAS, WITH SILVER POPLARS FORMING THE FOREGROUND.

Nobody who goes by train or car from Prague to Pruhonice expects to find there a landscape of great natural beauty. The country is rather flat, and covered with well kept fields, indicating a rich, heavy soil—an ideal place for farming. Even after his arrival at the small village of Pruhonice the traveller sees almost no sign of a large park. But as soon as he steps into the court on the southern side of the castle a great surprise waits for him. The first of a sequence of grand landscape scenes opens upon him. Its real grandeur cannot be shown through the medium of a photograph, but, nevertheless, the illustrations give a rather good idea of the character of the landscape with the pond in the foreground about 60ft. below.

The whole park at Pruhonice forms a series of valleys surrounded by wooded slopes with wide, green lawns and several ponds of different size connected by a small rivulet. These form each for itself a natural scene of a distinct character which has been carefully studied by Count Silva in order to treat them in a way to give each a definite individuality, to develop each important view as a pictorial composition. Pruhonice, in consequence of its more individualistic treatment, is very different from Muskau. To a very great extent Count Silva has, at least in certain parts of his park, made use of foreign trees and shrubs, while Prince Pückler scarcely planted anything else than the trees common to Central Europe.

The formation of certain landscape scenes by means of trees from parts of the northern temperate zone other than Europe is often to be met with in our parks, but seldom is it attempted on such a large scale. Most of the plantings are still too young to show the real effect the artist is trying for. One scene especially is very promising. A very large deep

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pond is surrounded by rather steep slopes. Those facing south form an imposing natural rock garden quite different from the one near the castle mentioned later. The rocks are rather barren, and it proved almost impossible to start plant growth on them. Nevertheless, large groups of Picea pungens, Abies concolor and Pinus austriaca are slowly growing up, while in the rich bottomland on the shores of the pond Douglas firs, Engelmann spruces and other North American and Asiatic conifers thrive luxuriantly. The same is the case with the conifers planted on the slopes facing north. I saw them first almost twenty years ago, and on every new visit to Pruhonice I am surprised how quickly those firs, spruces, pines and arbor-vitæs and cypresses are growing. About ten years from now one may be able to give a good impression of this scene even on a photograph.

The variation of the natural scenes at Pruhonice is one of the great features of this park. I cannot describe or even mention them in detail. Some of them I shall, however, point out. Beneath the castle, which has been built by the owner on the foundations of an old one, a large, picturesque, natural rock stretches itself for half a mile along the eastern side of the pond. Our picture shows a small part of this immense rockery which once comprised the richest collection of alpine plants on the Continent. Unfortunately, since the war most of the finest plants have been lost. Count Silva has been absent from his place for years, and at present he has not means at his command to keep up the rock garden as he used to. It was once his main hobby, and he could really be proud of it. Only the hardiest ones survive, and it is really astonishing how many plants have become almost naturalised. There are, for instance, still large patches of several acæna, like argentea or Buchananii; even acantholimon species stood the hardships well. Alyssum argenteum, of course, and some androsace, and Anthemis Aizoon, Arabis alpina, Armeria cæspitosa, various aubrietias and campanulas, Cerastium Biebersteinii and some nice dianthus hardly need any care. Besides these one still frequently meets between the rocks such species as Draba aizoides, Erodium Manescavi, Geranium lancastriense, Geum coccineum, Horminum pyrenaicum, Leontopodium alpinum, Lithospermum purpureo-cœruleum, Matthiola vallesiaca, Phyteuma campanuloides, a good many primulas, Satureia montana, Saponaria ocymoides, Saxifragas Elizabethæ, longifolia, marginata, muscoides and sancta, species of sedum and sempervivum, Thymus serpyllum, Townsendia Wilcoxiana, Veronicas argentea and gentianoides. A good many interesting dwarf shrubs have found convenient sheltered places among the rocks. Rhododendron yedoense and several of the Chinese species related to intricatum are growing freely. Also some of the larger types, such as R. Smirnowii, and of course, all the European species and their hybrids. Many evergreen forms of Chinese cotoneasters form broad clumps, covered with their beautiful red fruits for many months, as, for instance, C. Dammeri, C. adpressa and some forms not yet identified botanically, of which I sent the seeds from north-western Yunnan ten years ago.

The collection of foreign trees and shrubs at Pruhonice is very large. In almost every part of the big area where a suitable place could be found rare plants have been placed. A few years ago Count Tarouca commenced a big evergreen plantation of rare conifers and a great many broad-leaved species. Most of them survived the long and severe winter of 1923 to 1924 without any real damage. Viburnum rhytidophyllum, V. utile, Berberis Julianæ, B. Gagnepainii, B. Hookeri, Stranvæsia Davidiana, several forms of skimmia, a great many fine varieties of Ilex Aquifolium, Pyracantha angustifolia, Photinia glabra, Phillyrea decora, Daphniphyllum macropodum, Cistus laurifolius, and even such plants as Corokia Cotoneaster, Castanopsis chrysophylla and Trochodendron aralioides seem to do well, but are still too young to judge of their real hardiness. Prunus Laurocerasus schipkænsis, kalmia, Lonicera pileata, and such half-evergreens as Quercus pseudo-turneri, kœhnei, and also the forms of the hybrid Q. hispanica known as Lucombeana and fulhamensis are quite hardy.

But, after all, the most important feature of Pruhonice is its artistic value. It is our largest modern park, covering a surface of more than 500 acres, and I do not think that there is even in England a modern creation of landscape design of equal artistic value. The park needs, of course, ten to twenty years more to develop fully its most characteristic scenes; and it is, therefore, a great pity that under the prevailing

THE CASTLE SEEN FROM THE SOUTH-WEST.

THE LARGE PICTURESQUE AND NATURAL ROCK GARDEN WHICH CONTAINS A RICH COLLECTION OF ALPINE PLANTS.

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circumstances it may never become finished. If Count Silva cannot do it out of his own means the Government ought to take it over as a national park and to provide the necessary money for its upkeep and finish. The Czechoslovaks are a garden-loving people. Pruhonice is not far from their capital, and it ought to become a well kept public park, and not to be allowed to fall to decay if it cannot be kept and finished by its owner. It is always difficult to preserve such great living works of landscape art, but they are among the most precious treasures a country can have.

CAMILLO SCHNEIDER.

THE MANURE PROBLEM

PROPRIETARY BRANDS OF FERTILISERS.

WHEN study has so far advanced that a tolerably clear idea of the requirements of plants has been acquired, there still remains the difficult question of ascertaining what are the important deficiencies in the soil with which we have to deal. The knowledge that plants require potash, nitrogen, phosphoric acid, lime, etc., is helpful to a point, and supplemented with the information that nitrate of soda and sulphate of ammonia are rich in nitrogen, that sulphate of potash is the best form in which to apply potash, and that one chemical is adapted for light sandy soils and another for clay, we have a combination of facts at our finger tips which, theoretically, should make us expert plant feeders. In point of fact, however, there is every possibility of going grievously astray unless the soil to be dealt with is so thoroughly understood that the required chemicals can be applied in a proportion that will make up the deficiency without an unbalancing effect upon the existing properties in the soil.

Reliance upon soil analysis may be wise or otherwise, but there is a tremendous risk that the report upon a few pounds of soil taken in handfuls from various parts of a garden will bear very small resemblance to the actual chemical character of the garden as a rooting medium for plants and crops. Analysis of a single small sample of soil should therefore seldom be considered sufficient reason for putting implicit faith in the capability of a heavy dressing of this chemical or that. As a matter of fact, it is the rule rather than the exception that one chemical fertiliser should be supported or followed by another.

The commercial grower with large acreage may economically and with advantage utilise chemicals separately and individually, but all things considered it is of greater advantage to the private gardener and amateur to use a compound fertiliser or a manure of more or less complete character.

There is always this advantage in a proprietary fertiliser—it is blended in a proper manner by a firm possessing all the equipment necessary to test the quality of the component parts and to blend them thoroughly. The production of such fertilisers is the work of fully qualified chemists: it has to be, for no inferior and unreliable brand of garden fertiliser can for any length of time endure in face of competition as keen as can be matched by any commodity in trade. That the range of fertilisers on offer to the public is of bewildering extent is itself high testimony to their quality, for a poor and unsatisfactory brand would speedily be elbowed off the market by the crowd of tested and tried fertilisers that have an established reputation.

Not all proprietary fertilisers are equally adapted for every purpose. There are certain brands I have used intermittently for a period of three dozen years, and within that time I have cultivated many gardens of widely differing character, and in some cases the the fertilisers I like best have had to stand aside in favour of others which were better suited to the particular requirements of the gardens concerned. The question of humus must always be carefully considered; and, on the one hand, a harsh, brashy or gravelly soil, or, on the other hand, a stiff, stubborn clay, require a bulky vegetable or even animal-refuse compound rather than a concentrated chemical preparation.

Hop manure is of very great value on gravel, chalk, clay or dry sand, especially where stable manure is scarce. Wakeley's is a well known name in connection with hop manure, and as this particular brand is reinforced with useful chemicals it is of sound value and great utility.

Other good hop manures are on the market, the famous firm of Abol, Limited, have a good line of their own. Maskell's is another, and other names might be added, but my purpose is not to advertise makers but rather to indicate the particular purposes for which different kinds of proprietary manures are suitable. Hop manure would not be my choice for an old black-soiled garden already surcharged with humus, but new gardens and those where the soil is of a "hungry" character are greatly benefited by it.

Fish and meat meal manures are also good for new and somewhat dry soils. The Humber Fishing and Fish Manure Co., produce a capital manure, and Messrs. Robinson Bros., Limited, West Bromwich, manufacture a fertiliser which contains a large proportion of animal fat and bone which is of lasting value.

Wool waste, combined with dried and pulverised sheep's manure, makes a rich, quick acting yet long-standing soil enricher, for the particles of wool not only themselves contain valuable properties, but are also of sufficiently absorbent character to take up, and hold the properties of the actual manure as they dissolve. Wellson's plant food is a compound of this character prepared by efficient grinding and mixing machines, and consistently turned out to a high standard of excellence. Messrs. Willis Bros., Harpenden, also handle wool waste products, which are extremely useful for opening up stubborn clay soil, or improving the moisture-holding powers of a stony sand.

Quite a large number of flowering plants, as well as the root crops among vegetables, like a good, rich soil, but are not improved by being transplanted (or sown in the case of seeds) in freshly manured soil. On this account it is frequently desirable to apply fertilisers at the time of autumn digging, that they may lose their "fire" before the roots come in direct contact with them. Rapidly soluble chemicals cannot economically be buried in soil which is to lie vacant throughout winter and early spring, but here again manufacturers come to our aid with preparations which are admirably adapted for the purpose. Stonehouse "Soil Enricher," Robinson Bros.' "Multiple," H. P. Tripps' "Tripple" Fertiliser, Bull's Plant Food, Abol Horticultural Fertiliser, native guano, various brands of blood and bone manure, dried sewage, and the hoof and horn fertilisers belong to this class, being highly nutritious, for the most part gradual in their pace of conversion or solubility, and in all respects suitable for enrichment of soils which are well supplied with humus, but require replenishment of phosphates, potash, and a slowly soluble form of nitrogen.

Thus far, the point of consideration has been the improvement of the soil in regard to its stores of staple plant foods, all the substances referred to or indicated being suitable for digging in, either in autumn or early spring. Not half of the fertilisers of this character have been individually named, but it will be found that such firms as G. H. Richards, Casein Products, The Key Fertiliser Co., Briton Ferry Chemical and Manure Works, Lawes' Chemical Manure Co., The Acme Chemical Co., Garden Supplies, Limited, H. Richardson and Co., and still other firms have among their brands one or more which by general usage rather than scientific accuracy, are termed organic fertilisers, and these are the kinds for digging in, and provided a choice is made with due regard to whether or not the soil requires humus, safety and satisfaction are pretty sure.

There still remains the very important problem of selection of tonics and stimulants to be applied during the height of the productive season either in the form of dry top-dressings or as liquid manure.

For pot plants, the most convenient and economical method of applying tonics is that of watering. Top-dressing big batches of plants in pots with

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spoonfuls of powder is an irksome task, while there is always the danger that at the next watering too much of the undissolved chemicals will be washed to the crowns or stems of the plants to do mischief. In the case of beds, borders, vegetable quarters, etc., it is frequently safer periodically to top-dress with dry fertiliser and hoe it in; the hoeing always benefits, and on the other hand, watering big areas is a risky business to start upon, because intermittent watering during prolonged drought is detrimental rather than beneficial, and regular watering may be too great an undertaking. A limited quantity of liquid fertiliser is inadequate moisture for the soil, and a thorough soaking may easily dilute the fertiliser to such an extent that its benefits are nullified.

Numerous as the highly concentrated fertilisers for the purpose under present consideration may be, there are some which have stood the test of time, and have survived the continuous bombardment of competitive lines, the names of such scarcely need mention except by way of appreciative compliment. Clay's Fertiliser, Ichthemic Guano, Canary Guano, Thomson's Manure, require no eulogy; they have been life-long helpmates. There are, nevertheless, various brands which are of comparatively recent introduction, but which have to their undoubted credit the solid fact that they have made progress, sufficient proof in itself that they are good; else they, like some others, the names of which it is not worth while to recall, would have gone under, after brief but futile assaults upon the strongholds of the aforementioned old servants. Carmona, Abunda, and other names occur to mind, and the results of their use are pleasing, while still the numbers grow, and new firms enter the field: Casein Products, Plantora, Key Fertilisers, Briton Ferry, Vickers, being names of recently acquired and growing reputation. The question is sometimes asked whether this multitude of proprietary fertilisers is really required; my answer is that their continued existence proves their need and utility, for in the severity of present-day competition, the unwanted and the incompetent cannot stand.

The wide range of fertilisers is a boon to the grower, because it provides easy means of varying the menu for his plants and crops, and rest assured, however pleasing the results of a certain fertiliser may be, there comes a time when plants and soil benefit by a change, and the wise cultivator is observant of that fact. For my part, even in a single season, I should prefer to use two kinds of fertilisers at intervals, than adhere to one the whole season through.

Plant feeding and soil enriching is an intricate problem, requiring an immense amount of study. Manufacturers have helped greatly by compounding well balanced fertilisers, but there is yet a possibility open to those who possess the necessary scientific knowledge, to help still further by telling candidly for what particular purposes and soils their individual brands are most serviceable. We fully realise the aim of the manufacturer is to sell, and not to narrow the limits of his market by quoting the minimum of serviceability of his productions, but the grower has learned just enough to know that different soils, different plants and crops, and different seasons of the year require different kinds of manures or fertilisers, and rather than narrow down the sphere of utility the manufacturer will foster increased demand by guiding the user in the difficult matter of using a particular fertiliser for a particular purpose. That will make for progress, while the claim of all to be competent for all purposes tends to bewilder if it does not actually mislead.

L. I. ATRIS.

DEAR HARBINGER

BY HALLIWELL SUTCLIFFE.

SHE is almost due, gowned in the lilac mauve beloved of old-time gentlewomen. Some name her the Chinese primula, others the Cashmere primrose. The wise, book-learned men have a Latin name for her, which I forget with great patience every time I hear it.

She is, as the Dale counts matters, a new-comer in our midst. She has not been settled here, that is, for as long as three hundred years or over. But she knows all about us, because she finds the same limestone highlands that she has known for centuries untold. Sometimes I fancy she smiles tolerantly as she listens to the gnarled yew trees in the garden, and hears them boast that they were here when Senlac Field was lost and won. In the far-off land of her ancestry the trees whispered o' nights of emperors whose dynasty was old when Senlac's warriors were binding the raw wounds of battle.

A FREE FLOWERING CLUMP OF THE CASHMERE PRIMROSE.

This dear harbinger of flower-tide is pushing up the crowns of bloom that soon will make witchery of our garden ways. Snowdrops and aconites have sent their banners out against the winter's spite. Soon the Cashmere primrose will carry the blithe standard forward.

"Harbinger" she is to me, and, I fancy, if she were asked, that she would admit my right to give her a pet name of my own. Many years have passed since a village schoolmaster higher up the Dale gave me my first root. Since then I have been constant to her service, until now you are never sure in what odd nook and corner a clump of mauve blossom may shine through the nipping east wind days. "Plants, like humans, know when you love them," an old gardener said to me one day; "and, once they know that, you can do almost anything with them."

That has been my experience of Harbinger. I have planted her in the wind-swept open, in the little strip of woodland by the stream; and in shade or sun she thrives, eager to humour my caprices. Like all courageous optimists, she is apt to think the best of those subtly treacherous days that come in mid-December, when warm airs blow and gnats come out of their crannies. For this reason the safest quarters for her are in positions slightly sheltered, but not too secluded from nip of the pessimist winds that check her hopefulness.

Harbinger loves to be tucked up in limestone pockets with moistish soil for her feet; and that is fortunate, for the round heads of bloom, showing against the soft greys of the stone, have a beauty not to be described by any pen.

A true-hearted gardener must always have something of the evangelist about him. In all the years that Harbinger and I have shared, I can remember no one who, seeing her in full bridal dress, has failed to yield instantly to her strange, appealing charm. She is, in some deep sense of the word, a mystic flower, and lays a happy spell on men. She is, too, a this world's creature, brave and buoyant though winter whistles down the steeps. And that is why one would like more folk to be acquainted with Dear Harbinger.

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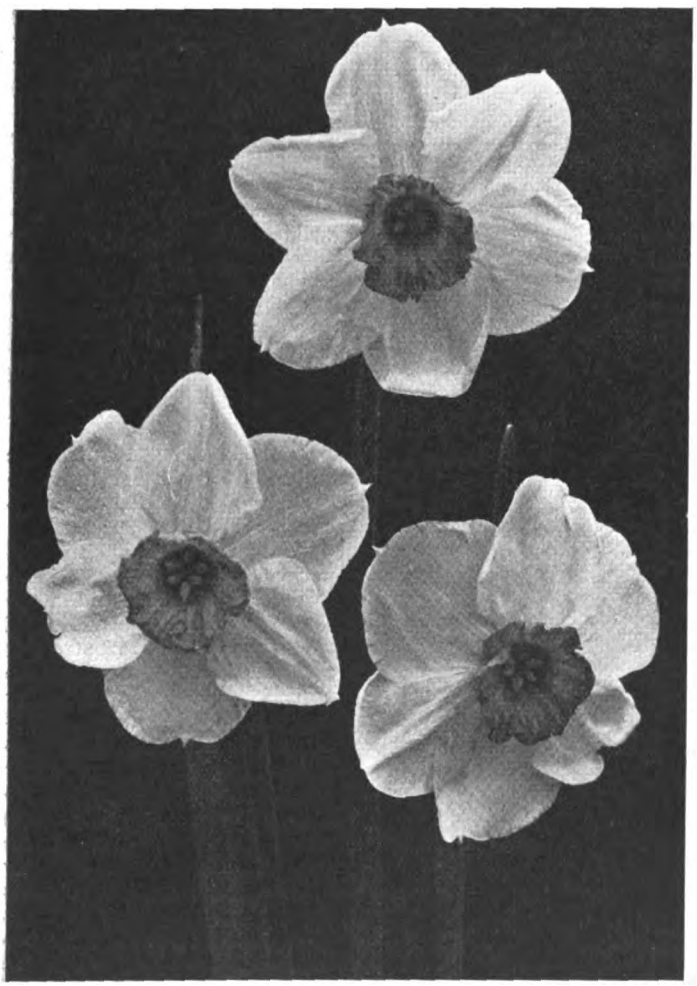
THE LONDON DAFFODIL SHOW

WHEN attending a flower show, and particularly a special flower show such as that under notice, we usually endeavour to place ourselves in the position of a flower lover visiting such a show for the first time or, at least, after a considerable interval. On April 15th and 16th the first impressions of such a person must have been disappointing, as, immediately on entering the Royal Horticultural Society's Hall at Vincent Square, primroses and polyanthuses met the eye—excellent flowers and worthy of unstinted admiration; but they were not daffodils—immediately above and beyond the primroses were carnations, lovely fragrant carnations, but still no proper substitute for daffodils. Having rounded the corner of primroses and carnations, so to speak, one was confronted with beggarly empty tables. Messrs. Barr and Sons staged over two hundred distinct varieties in goodly vases. The dainty little flowers of Silver Cycle did not find favour with the committee, but were greatly admired in the collection. Besides its grace and charm of form, it is the first cyclamineus bicolor hybrid that they have shown. Warwick, a yellow trumpet; Nereus, a somewhat similar bloom but of richer colouring, with a widely open, frilled tube; Basilia, of similar form but lovely primrose yellow; Fiery Monarch, a large incomparabilis with a brilliant corona; and St. Olaf, a starry Leedsii of delicate beauty, are the names of only a few of the delightful sorts to be seen. But lovely as these were, they were equalled and at times surpassed by some of the unnamed seedlings The large Barrii flowers, both with white and with yellow perianths, were wondrously beautiful. while in the centre of the group there was a vase of the splendid Fortune, a large incomparabilis with a yellow perianth and lovely orange corona.

Bath's Flame, a Barrii variety with a cupped, red-rimmed corona, was the outstanding sort in the collection of Messrs. R. H. Bath, Limited. Lord Kitchener, with a pale primrose tube; The Marquis, Dominion, Golden Goblet and Early Gold, four rich yellow trumpets; with Buttermilk and Inglescombe, doubles, were also of great merit.

High quality was fully evidenced in a large collection arranged by Messrs. J. R. Pearson and Sons; while the grouping of a few selected varieties was an agreeable change from the conventional method. The massed blooms of Marshlight, Brilliancy and Sunrise were



N. LADY DIANA MANNERS, AN EXCELLENT BARRII VARIETY.

THE TWIN-FLOWERED TAZETTA, N. KINGCROFT.

Then one saw the glorious arrays of daffodils of all possible forms and colouring so generously displayed by the chief trade growers, and realised that, after all, it really was a daffodil show.

Although it was, nominally, a competitive show, these wonderful groups of cut blooms were, as so often happens, the making of the show, and no praise can be too high for them. The high quality can be assessed from the fact that four gold medals were awarded. The recipients were Messrs. Barr and Sons, Messrs. R. H. Bath, Limited, Mr. J. L. Richardson, and the Donard Nursery Company. A whole number of THE GARDEN might be filled with appreciations and descriptions of the thousands of admirable blooms which made up these monster exhibits.

The large trumpet daffodils shown by Mr. J. L. Richardson included Ivorine, Goldbeater, Master Robert, Sergeant Murphy, Michael and Loyalist, the first a white variety and the remainder of rich yellow shades. Queen of the North and White Star are two of his best Leedsii, while Firetail and Crœsus of the Barrii section possessed brilliant coronas.

In the Donard collection it was such as Eskimo, Silver Fox, Tenedos, Everest, Lady Sackville and Phantasy, in pure white or sulphur shade; and Gog, Magog and March Wind, of deep yellow colour, among the trumpet daffodils that attracted first attention. For brilliance of colouring, Crœsus, Carnival, Dosoris and Sunrise were excellent; delightful. Other sorts which attracted special attention were Moira O'Neill a bicolor trumpet with a primrose tube; Sanctity, a pendulous white trumpet; Fairy, yellow; Bernardino, Potentate and Thorkel, Barrii varieties; and, in The Pearl and Argent, two fine doubles.

Sarchedon, shown by Mr. J. W. Barr, was the finest poeticus variety in the Show. Alope, a large trumpet with a deep primrose perianth and richer tube, possesses great charm; St. Hilda, yellow trumpet; St. Hywin, a giant Leedsii with an attractive frilled corona; Treserve, a gigantic yellow trumpet; and Silver Fleece, are the names of a few of his novelties.

Smaller but interesting collections were contributed by Messrs. Cartwright and

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Goodwin, 'The Welsh Bulb' Fields, Mr. W. F. M. Copeland, Mr. W. D. Fownes, and Mr. Thornton.

With very few exceptions the competitive classes did not induce many exhibits as might have been expected. In the open classes which required three blooms each of twelve varieties, Mr. J. L. Richardson and the Donard Nursery Company were awarded two first prizes. The latter's yellow trumpets were particularly good. The chief varieties were Clarion, Grenadier and Gorgeous. In this class Mr. Richardson and Mr. F. H. Chapman were placed equal second. Of Mr. Richardson's first prize blooms, Orange Glow, Brightness, The President (incomparabilis), Firetail, Queen of Hearts, Crimson Braid (Barrii), were the best.

In the next classes, requiring three blooms each of six varieties, Mr. Richardson won six first prizes with splendid vases of such sorts as White Dame, Atalanta (white trumpets), Mrs. W. Christie Miller (bicolor trumpet), Orange Glow, Brightness (yellow incomparabilis), Pedestal, The President (bicolor incomparabilis), Queen of Hearts, Lady Moore (bicolor Barrii), Irish Peach, Tenedos (large Leedsii). Mr. Chapman, whose best were Ossa, Formidable and Yukon, was first with yellow trumpets. Showing six seedlings, Mr. Copeland was first with Triandrus and with Oranges and Lemons, Meringues and Irene Copeland, was equally successful with doubles.

The open classes for new varieties were the most successful in the Show. The premier prize was won by Mr. P. D. Williams, with twelve magnificent varieties, which included St. Agnes, a giant Leedsii with a delightful crested rim to the corona; Kilter, a brilliant Barrii; Theodore, a bicolor Barrii; and some excellent seedlings. Dr. N. Y. Lower, who was second, included in John Peel, a lovely Barrii with a pink sheen on the perianth and a reddish orange corona. Beauty of Radnor and Rewa were also of great merit. In the class for six varieties, also raised by the exhibitor, the Rev. A. R. Meyer was first with unnamed seedlings; and the Rev. G. T. Pearce was second. The best three shown by the Donard Nursery Company were also unnamed.

Mr. P. D. Williams won the first prize in the very strong class for twelve varieties not in commerce. Here he included magnificent vases of Kilter, Nelly and Kenegie (Barrii), and Miriam, a sulphur yellow trumpet. Mr. Richardson, who was second, showed the rich yellow trumpet, Golden Ingot, and Sunset Glow, a brilliant Barrii. The Rev. H. R. Meyer had the best six and Mr. Copeland the best three varieties; while Major Churcher was first in the novices' class.

The classes for single blooms of the different sections or sub-sections were generally well filled. Mr. P. D. Williams and Mr. Richardson were first in four classes. Mr. Watts was first in two, and Mr. W. Welshman, Mr. Copeland and the Donard Nursery Company each won a first prize.

The amateurs' classes were poorly represented. Miss K. M. Hinchliff, Worlington House, Instow, was the chief exhibitor in the first section; and in the other, the Rev. G. Pearce, Creed Rectory, Granpound, Cornwall, won most of the first prizes, Miss Violet Warren, The Quinta, Canterbury, was first in two classes.

The three bowls of daffodils were poor attempts, and no one seemed to exhibit a basket of blooms.

NEW DAFFODILS.

BEERSHEBA.—This is a large, white trumpet daffodil of substantial make and a long tube lined to the base with a suggestion of yellow at the junction with the perianth. Award of merit. Shown by Mr. J. L. Richardson.

DAWSON CITY.—A handsome yellow trumpet daffodil. The perianth is shapely and the cylindrical tube is exceptionally long. Award of merit. Shown by Messrs. R. H. Bath, Limited.

FANNY CURREY.—A delicately beautiful giant Leedsii bloom of paper white colour. The widely expanded, frilled corona is prettily fringed with pink. As only three blooms were shown, an award of merit could not be granted. Preliminary commendation. Shown by Mr. J. L. Richardson.

HADES.—The application of this name is not readily apparent. It is, however, a beautiful Barrii variety. The large star-shaped perianth is of pale primrose colour and the basin-shaped corona is a deep cardinal. Preliminary commendation. Shown by Mr. J. L. Richardson.

JUBILANT.—This is a magnificent giant incomparabilis variety. The perianth is rich yellow and the large tube is a deeper shade of the same colour. Award of merit. Shown by Mr. P. D. Williams.

KINGCROFT.—This was certainly one of the best novelties in the Show. It is a twin-flowered tazetta bearing blooms the size of a small pheasant's eye narcissus. The perfectly round perianth is white, and the regular corona is a bright orange. The blooms are sweetly scented. Award of merit. Shown by Mr. P. D. Williams.

LADY DIANA MANNERS.—We are inclined to the opinion that this was the best Barrii variety with a white perianth in the Show. The blooms are large, perfectly round and possess exceptional substance. The broad corona is of deep yellow colour, heavily margined with fiery orange. It is recommended for garden decoration and for market purposes. Award of merit. Shown by Messrs. J. E. White and Sons.

YELLOW JACKET. — There were several varieties among the eighteen before the committee which we should have expected to receive an award in preference to this. Opinions were divided as to which division it should be placed in, and with reason. It is a small self yellow flower with a poor type perianth and neat little corona, which seems to belong to the Barrii division. Award of merit. Shown by Mr. C. A. Jardine.

THE INTERNATIONAL SHOW AT HAARLEM

IN the grounds of Groenendaal Park in the small and quaint village of Heemstede, near Haarlem, is laid out one of the most magnificent flower shows in perfectly natural and charming surroundings. Over forty acres of what was formerly woodland pasture, with gentle undulating slopes broken at intervals by the windings of tiny streams, have been planted with spring flowers. It is fifteen years since the last great international exhibition at Haarlem, and 1910 has been easily eclipsed by the present one. Within these years enormous changes have taken place in horticulture throughout the world, with the introduction of new plants, and it is one of the main purposes of the Show that it exists for the study of the many new species and varieties that have entered the bulb world during that period. In addition one realises how little Dutch horticulture has to learn in connection with bulb growing. Over 2,500,000 bulbs were planted in the area last autumn, and the mass of bloom this spring stands as testimony to the enterprise and skill of the many Dutch firms engaged in the industry.

In front of the spacious exhibition hall, wherein are being held special shows of flowers and shrubs in season, are laid out numerous beds of narcissi, tulips and hyacinths. The method of planting these beds may be noted *en passant*. The beds are well filled, yet the individuality of each plant is retained. The spacing is such that the foliage has a sufficiency of room to carry out the necessary life processes of the plant. Throughout the whole lay-out of the exhibition one meets these beds at every turn, providing an array of bloom and a perfect kaleidoscopic effect in colour which would be difficult to equal. Whites, yellows, blues of all shades, and reds of the tulips and hyacinths, combined with the yellow heads of the daffodils nodding and dancing on their long stems, peeping from a mass of light green foliage, produce a blend of colour which the artist would find exceedingly difficult to portray. Holland well deserves its name as 'The Garden of Europe," for truly no other country can produce such a wealth of bloom and colour in April and May as the land of the dykes and windmills.

In addition to beds containing hyacinths there is a number filled with shrubs. The planting of the latter has been largely carried out by the firm of W. Keessen and Sons, "Terra Nova," Aalsmeer. The collection is a representative one containing cotoneasters, berberises, osmanthus, viburnums, stranvæsias, etc., all of which appear to thrive exceedingly in the sandy soil. One bed close by calls for a word of praise, containing well fruited specimens of Ilex pyramidalis, which lends a touch of pleasant colour to the surroundings. Many beds of ornamental conifers, including new species from China, and of rhododendrons, which will be in their full glory next month, have also been set out by this firm and many others.

Near to the industrial department of the exhibition, which is of much interest, and contains a section dealing with pathological problems met with in bulb cultivation, is a small rock garden laid out by Messrs. Sengesskamp, Laren, N.H. The arrangement is good and gives one the idea of spaciousness. The subjects are well chosen, and produce the maximum of effect. Many choice alpines fill the crevices and niches in the rocks, while splashes of a bolder colour appear here and there through judicious mass planting of spreading varieties. Dwarf shrubs are planted at intervals between the more trailing alpines, while a background of tall piceas completes the exhibit. Other two rock gardens are to be met with in the outlying parts, one designed by Messrs. A. Koper, Heemstede, the other by Messrs. Kweekerij, Moerheim. The former, laid out in woodland intersected by many winding paths, contains numerous interesting alpines, such as Raoulia australis (the "vegetable sheep" of New Zealand), saxifrages, primulas and dwarf shrubs. The latter is laid out on a mound in a series of banks. The idea is a novel one, and the plants are shown off to the best possible advantage. Stretching to the left of the exhibition hall there lies a very fine formal garden designed and executed by the Dutch Bulb Exporters' Association. The beds, planted up with tulips and hyacinths, are laid out in squares and rectangles. In the centre of the garden, which is enclosed by an evergreen hedge, stands a single-spray fountain. Undoubtedly one of the best gardens is that laid out by Messrs. Van Tubergen of Haarlem. The natural surroundings have been taken advantage of to the full and many choice woodland plants have found a place beneath the original trees of the park. Masses of Anemone fulgens and the St. Bavo strain lend a vivid touch of colour to the scene, which is mellowed

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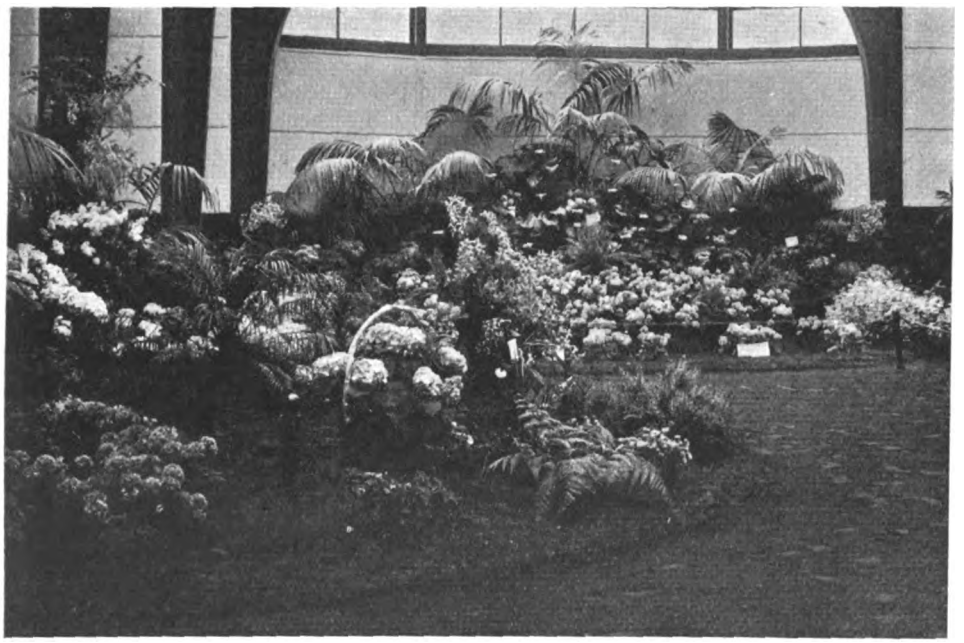
by the yellows of the daffodils and the more delicate shades of the hyacinths. Erythroniums, bulbocodiums, dwarf narcissi and eranthis, also add considerably to the general effect. Along the streamside a border containing hyacinths and the ever graceful water lily tulip, T. Kaufmanniana Gaiety, whose fine blooms are carried on stems barely an inch in height, with bushes of Mahonia Bealei at intervals, was also laid out by this firm. The outside exhibits cannot be passed over without reference to the excellent show of topiary work by Messrs. Helverda and Co., Aalsmeer, and also the numerous small fruit gardens laid out by firms engaged in fruit culture throughout Holland.

The value of these outside exhibits undoubtedly lies in demonstrating the excellent effects which are to be obtained by the judicious planting of spring-flowering bulbs, and also from the placing of selected species of shrubs and conifers. One recognises the importance of mass planting to secure good colour effects, and also the species and varieties which can best be planted together so as to obtain a harmonious colour scheme. Moreover, the qualities and characteristics of recent acquisitions can be studied first hand, which is of great advantage to those interested in the commercial aspect.



IN THE EXHIBITION HALL DURING THE SECOND SPECIAL SHOW

Inside the exhibition hall a magnificent collection of flowering shrubs, hydrangeas, azaleas, rhododendrons and roses, backed by many other spring-flowering subjects, was staged from April 10th to 19th. This was the great Easter Show, for which all Holland was *en fête*. That the Dutch take a keen interest in and are intensely proud of their flowers was evidenced from the crowds which poured in from the outlying districts to Heemstede on Easter Sunday. It appeared as if all the world and his wife were there. One cannot find words to describe the scene in the spacious hall. Reds, whites, pinks, blues, mingled with the dark and light green tints of the foliage to produce such a blend of colour that will not readily be forgotten. Probably the principal feature was the rhododendron in its many varieties, closely followed by the azalea. Of late years a great deal of work has been carried out by Dutch firms, notably Messrs. C. B. van Nes and Messrs. Koster, in the raising of new hardy garden hybrids. That success has attended their efforts is beyond question, judging from the wonderful display presented by those two firms. These Dutch hybrids are both larger and finer in every way than the ordinary type of garden hybrid, and carry large trusses of magnificent blooms of exquisite shades. The owner of any exposed garden will find his requirements excellently catered for if a wise selection of these hybrids be made. In Messrs. C. B. van Nes' exhibit, laid out in the centre of the hall were beds of Unknown Warrior, Mrs. W. H. Gare (Mons. Thiers × Koningen Wilhemina), Armstice Day, Horsham, Britannia, The Countess of Athlone and Van Nes' Sensation (White Pearl × Sir Charles Butler). This latter variety is a magnificent hybrid, carrying large trusses of pale lilac flowers with frilled petals. Many numbered hybrids were also shown which varied from pale pink to deep red tints. Messrs. M. Koster and Sons of Boskoop also staged a large and varied selection, notable varieties in this collection being Raoul Millais with delicate pink blooms 2ins. to 3ins. across, Mrs. Lindsay Smith, a very fine hybrid, almost outdoing Pink Pearl by bearing large white blooms almost 4ins. across; Robert W. Wallace, with characteristic elongated trusses of pale pink flowers; Hugh Wormald, with pink blossoms resembling an amaryllis flower in shape. Azalea Brilliant Red, also staged by this firm, is a variety of great merit from the garden standpoint, and bears abundant blossoms of a shade of orange which assumes a fiery tinge when caught by the rays of the sun.

Azaleas and rhododendrons in variety relieved by flowering laburnums, Wistaria sinensis and double-flowering cherries were exhibited by many other firms. Of special note was the exhibit of Messrs. van Kleef of Boskoop, of Rhododendron Pink Pearl, which formed a perfect sea of colour. Hybrid azaleas, notably crosses of chinensis and mollis, were shown by others, vieing with the rhododendrons for pride of place. Roses, both polyanthus and hybrid teas, contributed in no small measure to the array of colour and bloom; while hydrangeas, staged by Messrs. Jac de Ridder, Aalsmeer, and cyclamens, shown by Messrs. D. Spaargaren supplied the more delicate shades of blues and pinks. The hydrangeas were especially fine and showed the results of careful attention and cultivation, the heads of flowers being 6ins. to 9ins. across. Primulas were also represented by numerous varieties of P. obconica grandiflora, while close by, tulips, rising above the graceful dangling bells of a bed of lily of the valley, supplied a patch of deeper colour. Carnations and orchids, which received considerable attention from Dutch visitors, were in the able hands of Messrs. Stuart Low of London. A very fine exhibit, occupying a large space, was that arranged by Messrs. P. van Nes of Boskoop. The exhibit was in the form of an oval with a raised background of pink, red and white rhododendrons flanked by tall yews, while beds of yellow azaleas and a few brilliant red polyantha roses along with one or two plants of Cytisus præcox, occupied the central part. Messrs. C. G. van Tubergen, in addition to their outside exhibit, presented an excellent display indoors in the form of a walled garden surrounding a rectangular pool. Many uncommon plants were represented and the whole provided rather a pleasing picture. Primulas, of which we noted one species, P. redolens, occupied along with Stylorum crevices in the wall. One of Forrest's finds, Caltha radicans, raised its yellow heads alongside the pool, while varieties of Iris filicifolia, Lilium longiflorum, fritillarias, triteleias, sprekelias, and tritomas also presented their nodding blooms. It was a most interesting little garden in the midst of a sea of colour.

Space does not permit of giving an adequate description of the numerous exhibits, chiefly narcissi, which were to be found in the Annexe. Many firms were represented, including Messrs. Warnaar of Sassenheim and The Welsh Bulb Fields.

In conclusion, the international character of the exhibition may be emphasised. Beds and groups are clearly labelled so that the amateur should have no difficulty in identifying the plants and thus be encouraged to greater effort in the future. In such an exhibition, acquaintance is renewed with all the older well known and time honoured flowers, while a knowledge of new species and varieties is gained. The arrangement and placing of the exhibits have been executed with great skill and meticulous care, and reflect the greatest credit on the committee. During May the exhibition will certainly be at its zenith as the greater part which now shows as tints of green will then be a blaze of colour, and will amply repay the visitor who makes the trip across to Holland.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

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SIMPLE GARDENING

WALLFLOWERS.

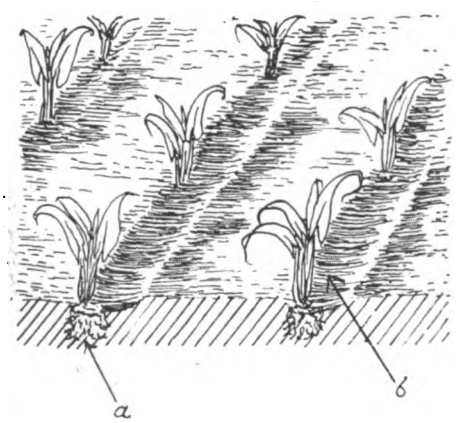
THESE plants will grow in almost all kinds of soil and even in old mortar rubble or a heap of gravel; but the resultant plants are not like those raised and grown on through the various stages with continuous care. Two plants, really well grown, are far more satisfactory than five grown without any detail treatment. We usually grow more plants than are required to fill the given spaces in our borders; they possess a single central stem only, the side ones being too weakly to bear flowers such as they ought. The cultivator should make up his mind as to the number of colours necessary for his purpose and sow seeds accordingly. It is neither necessary nor desirable to sow seeds in boxes or even cold frames—except in the case of a back-yard or very small garden where border room cannot be spared. Prepare a border in an open quarter, not too near a wall or hedge, especially a privet hedge, as the roots of the latter make the soil very poor. Very rich soil I do not advocate, but that of medium good quality and such that can be nicely firmed. Very poor soil should be made richer, as, throughout, the plants should grow steadily and sturdily. Sow the seeds thinly in shallow drills, transplant the resultant seedlings, when about 3ins. high, 6ins. apart in a nursery bed. Keep the soil clean and by October a splendid batch of plants will be available for planting where they are to flower. Every plant should make a flowering specimen 12ins. across at least.

ZONAL PELARGONIUMS FOR WINTER FLOWERING.

Amateur cultivators who possess warm greenhouses or conservatories still retain their affection for these plants and do their best to have a nice batch ready for staging by the month of September. But there are many who are just starting to grow the plants and others who have failed in their attempts. In the first place, the zonal pelargonium is a sappy-stemmed plant, and so we must try to get the wood as hard as possible during the summer months. After mid-June it is not absolutely necessary to have a garden frame for the purpose. We must make a selection of varieties at the present time, if this has not been done in February or March. I strongly recommend cultivators to grow single-flowered as well as double varieties, as the latter suffer from damp more than the singles. If cuttings are to be inserted, root them singly in the smallest pots available—72's—placing them in a frame or on the stage in a greenhouse; if on a shelf in the latter, a little shade will be beneficial at times. Cuttings already rooted should be re-potted as soon as possible. For cuttings, a mixture of leaf-soil, sand and loam in equal proportions; and for the first re-potting, loam two-thirds, leaf-soil one-third, with a small quantity of sand. For subsequent re-pottings a similar compost with the addition of a 5in. potful of bone-meal to a bushel. From mid-June to the end of August place the plants on a bed of ashes in the hottest position in the garden, and remove all flower buds, also stop straggling shoots and feed when the pots are filled with roots.

THE TREATMENT OF ARUM LILIES AFTER FLOWERING.

There are several ways of treating these valuable and useful greenhouse plants after they have finished flowering. A very strong plant will bear five blooms between the month of August and the following Easter; but the majority bear three blooms each. As a general rule we overcrowd the plants in the pots; they increase rapidly, and grading is well worth attention. The present is



a suitable time to grade the plants, placing the strongest on one side, the medium by themselves, and the weakest also, so that there will be three batches of them, the small ones being grown throughout without being subjected to a forcing temperature; they will then gain in strength rapidly. The arum, during its growing season, likes plenty of water both overhead and at the roots, as long as there is not any stagnant water in the pots. Good drainage is essential. Water must not be suddenly and totally withheld; do this gradually. Plant out as shown at *a*, leaving a shallow along the rows as shown at *b*, to retain rain water. If the plants are rested in their pots, place the latter, *c*, on their sides; in due course the leaves will wither as shown at *d*, but they should not be removed before the re-potting or re-starting in the latter part of July. These will bear the earliest flowers, the planted-out ones being lifted in September.

BERRIED SOLANUMS.

The variety most generally grown is Solanum Capsicastrum. The varieties Williams' hybrid and S. Hendersonii are also worth growing, their berries being very fine but, as a rule, not as plentiful as those of the first-named sort. These plants are excellent for furnishing bright colour in the greenhouse during the autumn and early winter months. It is not necessary to have a strong heat, as the plants do very well in the same temperature as zonal pelargoniums. They are not difficult to grow, but to obtain very fine specimens constant care is needed, or the berries will be few in number. At the present time the young plants, raised from cuttings or seeds a few weeks ago, should be in tiny pots on a bed of ashes in a cold frame, whereon mats are placed every night, as frost must be excluded. Fibrous loam and leaf-mould with a small quantity of old rotted manure added will answer as a potting compost throughout their season. About the middle of June the plants should be placed outside in a sunny position, also on a firm bed of ashes. Six-inch pots will be large enough for the final potting. Now all that is necessary to be done till the plants are housed in September is to water and feed them regularly, using clear soot-water twice a week and clear liquid manure also twice a week. On hot days syringe early in the afternoon. Stop any long shoots growing beyond the general contour of the majority.

RE-POTTING AZALEAS.

I am referring now to Indian azaleas, those charming shrubs in pots so much appreciated by owners of greenhouses and conservatories. The plants are often much damaged by bad treatment after the flowers have faded and this chiefly through ignorance as to the proper way to deal with them. They like cool quarters during the hot days of summer and cool conditions may be ensured by placing the plants on a bed of ashes, tiles or slates on the north side of a wall or fence. But before transferring the plants to such quarters it may be advisable to re-pot them. It is unnecessary to do this every year, but every alternate year. I have grown plants nine years without re-potting them, but only as an experiment. The flowers were numerous every year, but smaller, too. Very fibrous loam, from which all loose soil has been sifted, two-thirds, and peat and half-rotted leaf-soil in equal proportions, one-third, will form a suitable compost. Use clean pots and crocks, drain the pots well and firm the new compost. Retain the plants in the glass structure, carefully watering and syringing till the end of May. Then place them outside, continuing the careful watering and syringing till the end of September, by which date the wood will be ripened and new flower buds formed.

GEORGE GARNER.

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NOTES FROM CONTRIBUTORS

CALCEOLARIA POLYRRHIZA.

IT is a pity that we have no popular name for this little hardy calceolaria, although by a free translation we might call it the "many-rooted slipperwort." The specific name of polyrrhiza is a great obstacle to many folks, and we might really adopt the title of the "Creeping Calceolaria." It has quite a spreading habit, sending its little roots out in all directions so as to form a mass in the open ground, or in rockwork springing up in all the openings between the stones adjacent to the plant. This is one of the factors in favour of this calceolaria, although not appreciated if we place some other and choice plant too near it without sinking stones deep enough to prevent the calceolaria from ingratiating itself among the roots and growths of the other flowers. But we cannot well afford to do without this, the hardiest of the calceolarias. C. plantaginea and C. Kellyii are not nearly so hardy, although they will thrive in milder gardens, and we can enjoy C. polyrrhiza as it sends up its shining foliage among the rockwork and embellishes its home with its stems bearing branching sprays of yellow flowers, of curious formation and carried on stems varying from 6ins. or 8ins. to even 18ins. in summer. It is a good doer even in a rich border; it will flourish in rockwork. It may also be employed in the crevices of crazy pavement or a retaining wall or in stone steps, and altogether is a charming little plant.—S. ARNOTT. *Dumfries.*

POLYANTHUS FROM SEED.

I HAVE not the least hesitation in stating that the most common garden plants often make a brilliant show and especially among these common plants I would mention the polyanthus. Everyone knows this plant, and I believe that most gardens contain at least a few plants, but not everyone grows them to display their full merits or gives them a chance to exhibit their glorious colours.

The most robust plants are those raised from seed or those which have been divided up during late summer, *i.e.*, after flowering. When the polyanthus is left to grow as it will it becomes a large clump, the flowers decrease in size and the colour loses its brilliancy; when one plant alone, it sends out long shoots which bear large trusses of flowers. Seed should be sown in spring.

If, for some purpose, plants are required true to variety, they must be obtained by breaking up old clumps as indicated above. Plants raised from seed show much variation and cannot be depended upon; but it is possible to have seed of whites, yellows, reds, gold-laced and others. A packet of mixed kinds will give a delightful variety in all shades of selfs and attractive blendings of different shades. I have recently been pleased with seed which I obtained, known as Munstead varieties, mixed. I wish to point out to beginners that the polyanthus is very, very easy to grow; it needs no frame, no shelter and no care beyond transplanting from the open seed-bed when the plants can be handled. —LANARKSHIRE.

HYDRANGEA HORTENSIS.

THIS beautiful shrub, which attains a height of from 3ft. to 5ft., is well worth cultivating, and its compact mass of blooms are very conspicuous among neighbouring flowers. They are largely used for terraces and conservatories, but wherever they stand they are certain to be admired. They are best propagated by cuttings, and these can either be taken direct from a parent plant during August or September, or they can be purchased from any reliable nursery. To take the cuttings successfully, the cut should be made just beneath a joint and be of ripe wood about 6ins. in length. The bottom leaves may be removed and the cuttings inserted in 5in. pots containing a compost of equal parts of leaf-mould and good loam with a fair sprinkling of sharp silver sand. The pots may be stood in a cold frame, as near to the glass as possible, and shaded from the hot sun until the roots begin to form. With this treatment, and a fair watering occasionally, it will not be very long before the cuttings secure a grip. During the winter the frame must be made frost-proof, but when there is a normal temperature a good supply of air may be given. The 5in. pots will be quite large enough for the first year's bloom, and as soon as this has disappeared the plants may be pruned to their base and placed in the frame again for the winter. During March or April it will be necessary to re-pot the plants after their first bloom into pots just large enough to take the roots comfortably. The old soil is well shaken from the roots, and a fresh compost may be prepared consisting of one part rotted cow manure, leaf-mould and sand, and two parts good loam. In June the plants can with advantage be transferred to 8in. pots containing a similar compost and placed in their respective flowering quarters. H. hortensis is a half-hardy plant, and thrives well in the south of England out of doors, but in more northern counties it blooms very successfully in a cool house or conservatory.—J. B. C.

THE FINE LARGE AND COMPACT HEADS OF BLOOM OF HYDRANGEA HORTENSIS.

"EVERLASTING DAISIES": A USEFUL TRIO.

AMONG the flowers which many folk like to call by their common name of Everlasting Daisies, there are three which bear a similarity, viz., rhodanthes, acrocliniums and helichrysums. All may be sown and grown out of doors if desired without being raised under glass, a fact which I think is sometimes lost sight of. When a sowing is made out of doors, the middle of May is soon enough to start, and where the chief object is to grow the flowers for cutting for winter decoration, I find that a May sowing answers. Most people, however, with room available in a greenhouse like to have those very dainty flowers—rhodanthes—earlier, and for this reason sow seed in pans of soil made up of loam, leaf mould and sand, pricking the seedlings off when ready and finally potting twelve or fifteen in a 6in. or 7in. pot. The pink and silvery white forms of rhodanthes—Manglesi and maculata alba — are very charming for indoor decoration, and when in bloom, last a long time. Acrocliniums, being somewhat similar in form, but more hardy, can be sown out of doors where they are wanted to bloom. They delight best in a warm, sunny position and to see them at their best should be sown thinly in groups. Helichrysums are the most robust of them all, and before being planted in their final quarters ought to be pricked out for a time. Three or four feet should be allowed between plants in the borders. All "Everlasting" flowers are best gathered when half opened to allow for expanding in the drying process. —CLAREMONT.

LETTUCES BETWEEN BEETROOTS.

IT is a very excellent plan to arrange that some of the lettuces, at any rate, are between the rows of beetroot. Then, should the summer bring with it a long spell of very dry weather, one can still be sure of fine crisp salad. This is so for a very interesting reason. The leaves of the beet are large and very glossy, and on the surface of the foliage the dew condenses to a considerable extent. In the early morning hours this moisture runs from the tips of the beetroot leaves in a stream. If the ground round the plants is examined before the sun has been up long, it will often be found to have been soaked with water. Naturally, if the lettuce plants are in close proximity to the beetroots they will get all the benefit of this supply of moisture. The hotter and finer the weather the more abundant will be the drenching of dew which they receive. During the exceptional summer of 1911 an old gardener, with whom the writer was acquainted, was the only one who kept up a regular supply of good lettuces. These were all grown between beetroot plants in the manner indicated.—S. LEONARD BASTIN.

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GARDEN ECONOMICS

A FRIEND of mine, with a head for figures, told me the other day that he had been working out the expenses of his garden on a costing system and had found that it would have been cheaper for him to buy his potatoes and his vegetables at the local greengrocer and his flowers at a flower shop than to grow them in his garden. I believe that he had arrived at a definite sum saved. Although I had long had a suspicion that under certain conditions a garden was not a paying proposition, yet I scoffed at him as a man with no imagination and the conversation languished.

I have no head for figures and know that I should at once be skating on very thin ice were I to start out on an exposition of garden economics, but it is really a subject that bears investigation.

Gardening is considered a hobby by most owners of gardens whether they work their plot unaided or their domain with the help of a dozen gardeners and it is against human nature to run a hobby as a business venture. In this they are perfectly right, for few people make a living out of their garden and so it remains as a very pleasant bypath of their lives. On the other hand, although the vegetable and the flower garden run hand in hand, yet the one fills our tummies and so helps to satisfy a necessary want, the other gladdens our sight and our general feeling of pleasure and satisfies just as necessary an extravagance. Men who may spend their lives among figures and may have the cleverest business heads in the world, probably never dream of testing the profit and loss account of their gardens. They allot so much money to its upkeep every year and would be hurt and annoyed if anybody told them that as a business proposition their garden was a complete and utter failure.

In many cases there is no escaping the fact that the business side of most gardens is badly neglected and mismanaged. It is nobody's fault or everybody's fault; the owner may know nothing of gardening nor the gardener of business. They both go their own way without that liason which should exist between them, a combining of the two intellects. It is impossible to place a valuation on the enjoyment which flowers give to a household; on the other hand vegetables and fruit have a monetary value of a definite kind, and yet, when economy has to be practised, it is always the flowers which suffer and the allowance for their purchase and cultivation is cut down. I am sure that this is often a mistake. This does not mean that I advocate the policy of more flowers and less vegetables, but rather that the whole question of vegetable cultivation in the garden should be examined, for then there is something tangible on which to work. There are few households which can be supplied throughout the year solely with the produce of their own garden and orchard; likewise, there are few vegetable gardens or orchards which are as productive as they might be. Likes and dislikes in vegetables are strong, so the cook or the housewife should be called into consultation when estimating for the year's supply. Then, as a nation, we do not know how to cook vegetables and we eat too few vegetables cooked and served as separate courses. The planning of the plots devoted to each vegetable may be at fault; which may mean wasted space. The rotation may be wrong and so valuable ground may be lying idle and unproductive for a great portion of the year Odds and ends of ground may not be utilised for catch crops as they might be. It is points like these which I call economics of the garden, or perhaps economies would be a better word.

Flowers also have to take their share of the blame in garden wastage. Every gardener has his successes and his failures. It is perhaps only human that a gardener hates to be beaten and so tries again and again to turn a failure into a success. There may be something in the soil or in the local climatic conditions against him, or it may be lack of experience, or just be mere cussedness, but there surely comes a time when it is as well to bow politely to fate and grow something else which is known to be a success.

No doubt some day some fanatic will try to prove that so many thousands of pounds are wasted every year in British gardens, but until he turns up we may sleep soundly at nights. However cold-blooded it may sound to suggest the commercialising of the most charming hobby that man possesses, it might be as well if everybody examined the economic side of their garden once in a way, just to see if its efficiency could not be improved without taking away from its charm. I should be glad to hear of the experiences of any of my readers who may have a bent for accountancy and have kept thorough garden accounts.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

CARNATIONS AND PINKS, by Norman Lambert.

SEASONABLE WORK AMONG HARDY SHRUBS, by A. Osborn.

PLANT HOLIDAYS—II, by H. Stuart Thomson.

SOME NATIVE GEMS FOR THE ROCK GARDEN, by W. Ingwersen, Junr.

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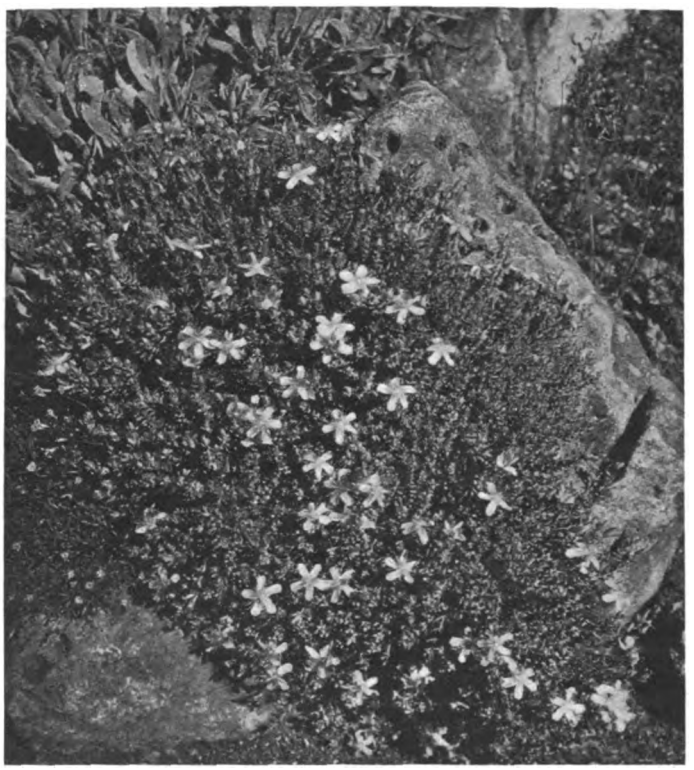
DWARF SHRUBS IN THE ROCK GARDEN—II

BY DR. R. LLOYD PRAEGER.

WE now come to the main body of rock-garden shrubs, namely, those which are neither particularly small nor conspicuously prostrate in habit. Here the number and variety are so great that it would take ten articles instead of one to do them even scant justice. Without a very special knowledge of them it is not possible to make a selection in which any gardener will not miss one or two of his favourites, so I must plead for the reader's indulgence, for I lack that sure touch which appertains only to long experience or to no experience at all. Now, we use these shrubs for rather different purposes in the rock garden. Some may be employed *in addition to* the rock plants, to give shade or to break up a monotonous surface. These should be light-growing things, under or close to which the rock plants will still get enough light for their purposes. At the other end of the series we have small dense shrubs—notably dwarf conifers—which can really be used instead of the rocks themselves, and which have a good deal of the effect of rounded boulders. They are most useful at the back or on the ridge of the rock garden, to form a background or to break up a sky-line. We shall begin with some of the light growers, and work along to the denser groups.

Artemisia tridentata has silvery leaves and a dwarf sparse habit, and is quite effective. Betula nana, prostrate and creeping in its high alpine habitats, makes a light little shrub in our gardens. Several of the coprosmas, such as C. propinqua, are useful in the milder parts of our islands. Coriaria terminalis, which is shrubby only at the root, is very striking with its arching stems bearing a heavy terminal bunch of pellucid orange fruits. The smaller genistas, such as G. nyssana and G. radiata, are wholly commendable, as are the smaller olearias, such as O. Solandri and O. myrsinoides; but some olearias will not do in the colder parts of the country. The cotoneasters, apart from the prostrate species, are mostly too large for the rock garden, but C. rotundifolia is moderate in size and one of the best in leaf and fruit. C. horizontalis, with its flat branches, abundant berries and purple autumn foliage, is a splendid rock garden subject, though it takes up some room. There are a few good light-growing St. John's worts, such as H. balearicum, H. ægypticum, H. empetrifolium, H. Moserianum; and the dwarfer fuchsias, and cytisus such as C. purpureus and the hybrids C. Beanii and C. kewensis, are all airy and free-flowering.



ST. JOHN'S WORTS ARE ATTRACTIVE AMONG THE ROCKS.

Among denser things which form small mounds of foliage there is again a large choice. The rock roses (cistus and helianthemum) are a host in themselves, with a wealth of blossom of every tint but blue, and varying in habit from quite prostrate to 10ft. high. Spiræa bullata is neat and erect, with small dark leaves and red flowers; and S. Anthony Waterer is pleasing, with its variegated foliage and flat panicles of pink bloom. Ribes alpinum var. pumilum aureum makes a very neat little mound of golden foliage, appearing particularly early in spring. Suæda fruticosa, a native of salt marshes, is, on the other hand, very stiffly erect and bright green—rather striking, although its green flowers are minute. Myrsine africana and Ilex crenata are small, evergreen and neat. There are two very curious dwarf forms of Escallonia rubra and Olearia macrodonta respectively, which originated as seedlings in a Donegal garden; both are small, dense and round, and of that bouldery appearance that conforms to a rock garden setting. The smaller forms of that kaleidoscopic "typus polymorphus," Potentilla fruticosa, are quite charming, with leaves green or silvery, and flowers ranging from white to deep gold. But the two most favourite forms, P. Veitchiana and P. Vilmoriniana, are rather large for the rock garden. The allied P. davurica is essentially a rock garden shrub, small, dense and slow-growing: it makes up for its deciduous habit by coming into leaf before winter has departed. There is a group of genistas which make dense hedgehogs of spiny branchlets—G. anglica, G. dalmatica, G. germanica, G. hispanica var. minor (the type makes a grand round mass, but is rather big for anything but a large rock garden): all are very free in blossom. At least one of the shrubby New Zealand senecios, S. laxifolius, is quite hardy, and makes a pleasing grey mass; the smaller, neater S. compactus is preferable, but is not hardy everywhere. Moltkia petræa, a near ally of the lovely lithospermums, resembles them in its flowers of a priceless blue, and makes a tight little bush. The various forms of the familiar rosemary are hard to beat as a background to the rockery, where they may be joined by the dwarf Cydonia Maulei with its early brick-red flowers, of which there are white and deep crimson forms. Corokia Cotoneaster will look well there, too, and for mild districts there are the dwarfer olearias, pittosporums and other distinct-looking New Zealanders. Some of the curious horsetail-like ephedras, relics of a distant age, such as E. Gerardiana or E. americana, look distinct when sprawling in a mass over a rock. There are some dwarf willows that are excellent among the stones; for instance, S. lanata, with its woolly leaves and big catkins. The genus daphne supplies some good upright dwarf shrubs as well as the lovely trailers mentioned earlier; such are D. alpina and D. collina. The protean Euonymus japonicus supplies a whole set of varieties, from creeping to quite erect and dense—often variegated into the bargain. Osmanthus Delavayi is one of the best of all small shrubs, and has recently been very properly praised in THE GARDEN. In flower it is quite delightful. Viburnum Davidii is one of several neat guelder roses. Mention must be made, too, of the many dwarf erect forms of the ivy, Hedera Helix: vars. congesta and minima are among the smallest of these, and many others form fine evergreen clumps.

What are we to say of the veronicas, of which New Zealand supplies such a wealth of shrubby forms? In mild districts a rock garden might be filled with them alone, so great is their range of form, colour and size. It seems almost hopeless to tackle them where space is so limited, and I shall retreat ignobly with the remark that the most pleasing of all are V. Lavaudiana and V. Hulkeana, both of which grow excellently—in some gardens! But almost all are quite easy where frosts are not severe, and they are charming things in flower.

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Where the soil is free from lime, or peat is obtainable, the door is open for a whole host of lovely dwarf shrubs, mainly belonging to that glorious family the ericaceæ; and here the writer of a discursive article like the present pauses appalled, for the dwarf ericaceæ alone would furnish material for several such articles. Rhododendron would fill a garden by itself, and there are also kalmia, ledum, leucothöe, andromeda, erica, calluna, dabœcia, gaultheria, pernettya, vaccinium and what not. To " save my face " it is presumably necessary at least to mention a few selected species, but even this is unsatisfactory, for one could make a number of such selections, one as good as another. To plunge, then, into the lovely wilderness of rhododendron, a selection for the rock garden (additional to the very dwarf species mentioned in the previous article) might run as follows: Flowers white or nearly so—RR. Colletianum, ferrugineum album, hirsutum album, indicum (white forms), micranthum, moupinense, serpyllifolium. Flowers yellow—RR. Anthopogon, flavidum, indicum vars. Flowers red or purple—RR. amœnum, ciliatum, ferrugineum, glaucum, indicum, × intermedium, linearifolium, lepidotum, ovatum, parvifolium, × præcox, punctatum, Rhodora, setosum, virgatum. Of kalmia there are neat dwarf forms of the white-flowered K. angustifolia; K. glauca has pretty purplish rosy blossoms. Ledum latifolium and L. palustre, and their small cousin Leiophyllum buxifolium, are all commendable and white-flowered, the last having pretty rosy buds. The leucothöes are equally pleasing, the most suitable for the rock garden being L. axillaris and L. Davisiæ. Andromeda polifolia is a thin little shrub with good pink bells. Gaultheria, already referred to, has a number of interesting species, from very small and prostrate to fairly large; but the larger ones have creeping stems which spread rather much for rock garden purposes. The hardy heaths (erica and calluna) are well known and most valuable, and it is not necessary to sing their praises here. St. Dabeoc's heath is especially useful and charming.

This enumeration could be prolonged till the cows come home. I must hurry on, and close with a brief reference to dwarf conifers and the large and indefinite group of sub-shrubs. Many of the conifers, either species or dwarf forms, are particularly pleasing in the rock garden. They are all evergreen, and their shapes often seem to fit the rocks and slopes particularly well. The exigencies of space compel a very small selection almost without description. The following form more or less dense roundish small bushes, matching the boulders themselves: Abies balsamea hudsonica, Picea excelsa conica elegans, P. e. globosa, Cupressus Lawsoniana nana, Thuya occidentalis Ellwangeriana. Juniperus horizontalis (hudsonica) is purplish and prostrate; Picea excelsa repens has a flattish habit, as has Juniperus conferta (= littoralis). Abies pectinata prostrata is a wild, picturesque sprawler. Picea pungens prostrata and Juniperus chinensis prostrata have a good blue colour, and Cupressus obtusa pygmæa is pleasantly coppery. The tiny erect juniper which is usually sold under the incorrect name of Juniperus hibernica compressa makes an absurdly neat little column; its correct name is J. communis compressa. A few other choice things of rock garden dimensions are Picea excelsa pygmæa, Pinus Laricio pygmæa and Cryptomeria japonica spiralis.

POTENTILLA FRUTICOSA MAKES AN EXCELLENT ROCK GARDEN SUBJECT.

GENISTA HISPANICA, WHICH MAKES A GRAND ROUND MASS, AND IS ESPECIALLY SUITED FOR THE LARGE ROCK GARDEN.

Lastly, a word must be added about sub-shrubs—herbs with more or less erect stems which are perennial and eventually become more or less woody. Many of them are very familiar garden plants—southernwood, lavender, cotton-lavender, rue; and they are as useful as dwarf shrubs for giving variety or shelter. The micromerias are valuable, having a neat habit, fragrant foliage, and late blossoming. Alyssum spinosum is quaint—all flowers in spring, all thorns in autumn. The sub-shrub type is characteristic of dry regions, like the basin of the Mediterranean, and often displays the grey, hairy or downy leaves that are common in plants of semi-deserts. To treat this group adequately a separate article would be necessary.

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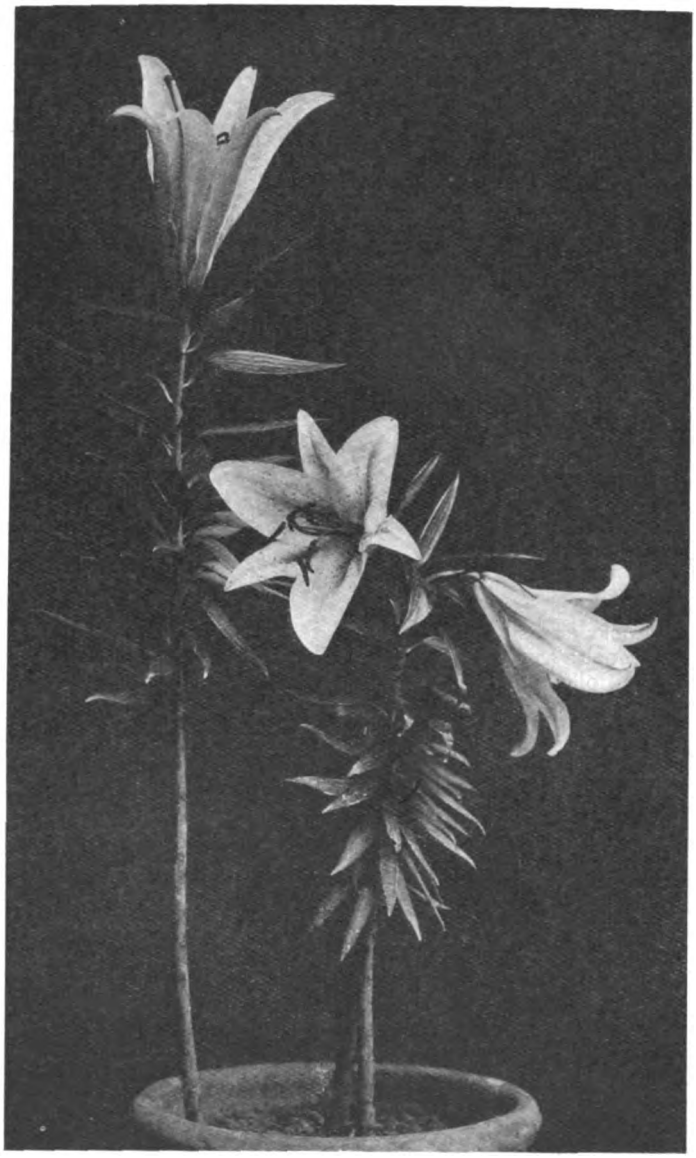
LILIUM ALEXANDRÆ

BY A. GROVE.

A NOTE ON A LILY WHICH SHOULD BE MORE SEEN IN OUR GARDENS. ITS HISTORY AND PECULIARITIES ARE FULL OF INTEREST.

THOUGH of hoary antiquity in the country of its origin, L. Alexandræ is a modern plant to Western nations, and there must be many gardeners who remember its *début* in this country, nearly thirty-two years ago. It made a great stir at the time, and was involved in a piquant air of mystery which must have proved diverting to Japanese botanists and bulb merchants. Curiously enough, two nurserymen were concerned in the introduction of this lily to the public at the Royal Horticultural Society's exhibition at Chiswick on July 11th, 1893, Messrs. J. Veitch and Sons exhibiting it as a species — L. Ukeyuri — and Messrs. Wallace naming it L. Alexandræ, provisionally. At that time no one here seemed to know anything of the history of the plant, or if they did, the knowledge was not divulged. At any rate, in the cloud of doubt as to the identity of the lily, someone conceived the notion that it was a hybrid between L. auratum and L. longiflorum. It has not been possible to discover how the notion originated, but the Yokohama merchants were probably blameless in the matter, since they sent it here under the name by which they knew it — Ukeyuri, literally the lily of Uke-shima (island), one of the Liukiu group of islands south of Japan, and it had no mystery for them. To some extent the notion may have been fostered by J. G. Baker, for in the account of the Chiswick meeting in the *Gardeners' Chronicle* of July 14th, 1893, Baker was reported to have expressed the view that it was a garden hybrid. In the account in THE GARDEN of the same meeting, we read that "L. Alexandræ is supposed to be a cross between L. auratum and L. longiflorum. It is quite distinct, and judging from several plants exhibited, a useful and certainly a handsome lily. The flowers are large, open and of the auratum character. . . ."



A DEFORMED TYPE OF L. AURATUM WITH UPRIGHT FLOWERS RESEMBLING L. ALEXANDRÆ.

Again, "The hybrid character is well depicted in both leaf and stem, the latter partaking of auratum in its formation and colour, while the leaf character partakes of auratum and speciosum . . . and in the firm substance and horizontal aspect of the leaves there would appear a touch of L. longiflorum." Then, in the *Gardeners' Chronicle* for July 22nd, 1893, after closer study of the plant, Baker gave it the *imprimatur* of a formal description, not, however, as a hybrid, but as "obviously a variety of L. japonicum, Thunberg." And there, technically, it has remained since, fitting ill into the place assigned to it, yet still unable to rid itself of the legend which makes it a mongrel.

The air of mystery which surrounded the plant when it was first introduced was deepened some years later by Dr. E. Bonavia, who, on June 25th, 1904, wrote in the *Gardeners' Chronicle* that a bulb of L. Alexandræ which he had flowered in a pot for some years, had split up into two and that while the flower of one was pure white, the petals of the other were a beautiful rose colour with white margins and a crimson stripe along the midrib. Dr. Bonavia suggested that if the lily were a hybrid, one of his bulbs had reverted to the colour of one of the parents. In July of the following year, the doctor wrote again that he had flowered two bulbs of the *red* variety of L. Alexandræ, adding his belief that the white-flowered lily was not of hybrid origin, but was probably an albino form of the red lily. It did not seem to occur to anyone at the time that, following J. G. Baker, Dr. Bonavia was confusing L. Alexandræ with L. japonicum, but that does not make the transformation of the colour of the flower from white to pink (or red, as the doctor called it), any less remarkable. Since Baker's day, there has been ample opportunity to clear up the history of the plant, probe its legendary origin and place it definitely among the natural forms of L. longiflorum. Normally, L. Alexandræ or L. longiflorum var. Alexandræ, as it should be called, holds its flowers in superhorizontal fashion, tending to a semi-erect position, corresponding to the angle at which L. regale usually holds its flowers, but sometimes the flowers assume an upright position. The peculiarity, if we may call it such, is evidently an old one as in "Zôho-Chikin-Shô," a Japanese book published in 1710, which Mr. Takeda showed to the writer in 1911, there is a drawing, obviously of the plant we call L. Alexandræ; the Japanese, too, call the plant the Upright Lily, and when he published this lily as L. noblissimum in the Tokyo Botanical Magazine in 1914, Mr. Makino reproduced this old illustration. All this was a little confusing till it was realised that the vertical position was no more normal than in the case of L. auratum, in which, and in typical L. longiflorum as well, the upright position occurs now and then, usually in uni-flowered specimens.

Many years ago, in conversation with the writer, Mr. Alfred Unger of Yokohama, who was well versed in all that pertains to Japanese lilies, repudiated the idea that L. Alexandræ was of hybrid origin. It was found, he said, on Uke-shima and other of the Liukiu islands, and though not exported till 1893, had been known to the Japanese for centuries. The

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flower is shorter than in typical L. longiflorum, and more widely open; the petals are paper-white and of substance, without blemish or markings, slightly reflexed at the tips; the inside of the trumpet is tinged with the green of the young apple leaf. The fragrant flower is of refined character, recalling in a way a much enlarged edition of that of the white rhododendron Griffithianum. A peculiarity of the leaves is the claw or petiole by which they are attached to the stem. The plant figures regularly as L. Ukeyuri in the Japanese bulb catalogues, and its cultivation is not difficult in those parts of this country where it can be prevented from spearing through the ground early in the year.

BULB NOTES

HYACINTHS AND WOMEN'S INSTITUTES.

MEMBERS like to feel they are doing something. Local branches round about where I live went in for growing the old-fashioned Dutch hyacinths last winter, and had exhibitions of the results at one of their usual monthly meetings. I was the judge on one occasion and was very impressed with the keenness of the members. I mention this in case the idea is local rather than general. It is an idea for any branch that has not tried it. No bulbs are as easy to manage in pots as Dutch hyacinths. They are a cottager's bulb every bit as much as a pelargonium is a cottager's plant. In case this note puts a match to a smouldering fire, I am going to suggest half a dozen varieties which are suitable and easy to manage. They are L'Innocence, white; Menelik, dark blue; Grand Maître, medium blue; Perle Brilliant, pale blue; General Pelissier, red; and Lady Derby, rosy-pink. In case a pale pink is preferred to such a very dark blue as Menelik, I would suggest General de Wet. I do not think it is necessary to buy first-sized bulbs. If good second-sized bulbs are obtained from a reliable source I find they are quite good enough for ordinary people, and just as much pleasure and fun can be got out of them. If it is intended to have a little competitive exhibition in the spring, may I suggest that one bulb only in a pot should be the strict rule. I know what a job it is to judge when it is otherwise. When, that is, from three to five bulbs are grown in one receptacle, and these are not all the same variety.

EARLY PERFECTION POETAZ.

I must again refer to this splendid variety. I saw a little exhibit of it at the first special show in March last at the Big International Exhibition at Heemstede. It looked well, but it was really past its best, which, of course, is an eloquent and silent testimony to its earliness. One of the owners of the stock gave me a postcard picture of it growing in their bulb fields. There was a very big mass of it, but the world is big too, and there may not be enough to go round. I hope, however, there will be some in British catalogues this next autumn. It has a white shapely perianth with a yellow cup and from my own experience I can say it is free-flowering and *very easy* to get into bloom about mid-January.

CROCUS "QUEEN OF THE BLUES."

Seekers after novelty and size will find this a real treasure. I have heard it said that "Finality is the only heresy." However this may be in a theological sort of way, it is certainly true horticulturally. Pick out the very largest variety you know in 1925, in a few years time it will have its nose put out of joint and it will have to take a lower place. Queen of the Blues, which I think is a 1925 novelty, will do to go on with for a while. There may be varieties with larger blooms, but I have not seen them; nor in the course of conversations have I come across anyone who has. If, however, size were its only recommendation, it would not be mentioned here. It is of a very charming shade of what in crocusdom is called blue—a sweet-toned, many shaded mauve in the language of the world. Of its early-flowering habit there is no doubt. Its value in this respect must depend upon the weather—according to mild, sunny spells synchronising with the blooming time of King of the Blues or not.

HYACINTHS AT THE INTERNATIONAL.

The fine display of hyacinths by the community of Overveen at the first of the series of special shows on March 12th was at once of historical and botanical interest and of present day utility. The historically minded could feast their eyes on such ancients as the quaint double yellow Goudbeurs (Purse of Gold); or the rosy Hofdyk, with each of its bells tipped with a little green, which gave it a decidedly piquant look which to me was very pleasing; or, again, the pale pinky buff Tamerlan, which is a pale pink toned primrose, a little washy-looking, perhaps. These they could compare with some of the very latest out, like the fine distinct yellow, Prince Hendrick, with its narrow segmented blooms; or the exquisite pale blue toned mauve Pride of Holland, or Daybreak, a striking rosy apricot, not a hundred degrees removed in colour from my old favourite Orange Boven; or, if one went to the long corridor, where a collection of seedlings was staged, there were many there which were still a long way off being in commerce. I had the opportunity of discussing them with one of the big hyacinth men of Holland and his comments on my "spots" made it abundantly clear that present day vendors are going for tight spikes and pale colours. I singled out a big-flowered rich deep Oxford blue here and there relieved with white shading as my choice. My mentor said, "no good, too dark," but the owner of the group said that most people had gone for it. There were many choice varieties, among others Spring Glory (white), Competitor (large rose after La Victoire), Salmon Queen (salmon pink), and Louis Paster (deep blue).

Botanically, it was interesting to see how some varieties had sported. The hyacinth in this respect may be compared with the chrysanthemum. Both are old hands at the game. Just as Marie Masse has given us several distinct colour variations, so has the well known King of the Blues. Some of these were represented in the big Overveen collection. I noticed Codra, almost the latest effort of the old "King" (in which it has taken on a double form), Ivanhoe, Purple King, Queen of the Lilacs and King of the Violets. Grand Maître (a blue), is also a big sport. Two lovely ones in the group were General de Wet (pink) and Pride of Holland (pale mauve). I am told that the explanation of the sporting in the two families is not the same. In the hyacinth it may have to do with the dropping out or the addition of one or more factors, while in the chrysanthemum it is a bud from a different layer of cells from the ordinary which suddenly takes it into its head to assert itself. I wish some one would explain this sporting properly and popularly. Thanks to the Baconian assiduity of our modern Bateson much has been found out, but an interpreter seems necessary to put his knowledge in such a way that it may be easier for the hypothetical man-in-the-street to digest. Will some one tell us about this sporting?

TULIPA OCULIS-SOLIS.

As I write, on the last day of March, my clump of Tulipa Kaufmanniana is past its best and my clump of oculis-solis is about half out. It gives a welcome bit of bright colour at this time of the year and under favourable conditions can look after itself. Two years ago I saw it in Messrs. Veitch's nursery at Exeter, where it had become acclimatised and had sown itself in several places. All anyone has to do if they feel doubtful about its behaviour if left in the ground for the summer, is to lift it at the same time as one lifts other tulips and re-plant it in early November. The petals have a pale look on the exterior as if some thin, light-coloured wash had been painted over them. The interior is a crimson or carmine (for the shade of red varies), with a large well defined black base and a symmetrical edging of yellow more or less almond shaped on each petal. Præcox, which is somewhat similar in its general appearance, is said by botanists to be a form of oculis-solis, but may be distinguished by its having the exterior of the petals a good solid, dull carmine and the basal blotch not such a dead black and with a blurred yellow edging. It is, too, rather the earlier to bloom. One or the other of the above-mentioned species are very welcome additions to a spring flower garden, as they lend a distinct tone of valuable bright colours which are so rarely present during these early weeks.

JOSEPH JACOB.

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PLANT HOLIDAYS—I

BY H. STUART THOMSON

NO ONE KNOWS WHERE THE ALPINE FLORA CAN BE SEEN AT ITS BEST SO WELL AS MR. THOMSON, AND IN THIS AND THE NEXT ISSUE HE DESCRIBES VARIOUS CENTRES WHERE A PEACEFUL HOLIDAY MAY BE SPENT OUT OF THE WAY OF THE ORDINARY TOURIST TRAFFIC.

ASKED to write an article on some of the best districts for plants in the Alps and Pyrenees, I find it difficult to know where to begin, or end. Moreover, as the only parts of the Pyrenees I ever visited are in the Eastern Pyrenees: Vernet les Bains, Mont Louis and Cambras d'Aze, and thence down the valley of the Aude to Carcainères and through the Defile of St. George to Quillon, very little could profitably be said which has not been published in these columns by botanists and collectors who have more recent knowledge.

Let us therefore pass to the Alps, where the hotels are better, even the smallest of them, the flowers at least as beautiful, the country more accessible, and where reliable and intelligent guides and porters are to be found in almost every village, particularly in the Swiss Alps.

But before reaching the Alps proper, there is in the extreme south, at the back of Marseilles and Toulon, the wonderfully picturesque limestone Chain of Sainte-Baume, which is a locality very rich in southern plants and scarce sub-alpines and hardly known to Englishmen. It may best be approached by diligence from the market town of Aubagne, just east of Marseilles, to the village of Gémenos at the foot of the mountains. June is the best month to visit this enchanting country, and fair accommodation may be obtained in several small French hotels on the plateau (Plan d'Aups), and there is an older and larger hôtelerie at the farther or east end of the plain. Plan d'Aups is at a slightly lower elevation than the Col de Bertagne (3,oooft.), which one passes in walking up the extremely interesting slopes from Gémenos. The range of mountains attains about 4,oooft. above the sea; and on some of the rocks on the north side several saxifrages, Silene Saxifraga, Daphne alpina and other alpines intermingle with the more southern species.

Just above Gémenos there is a sawmill by the roadway, and from this mill is a shady path through a remarkable grove of Judas trees (Cercis Siliquastrum) and Holm oak (Q. Ilex). The Aleppo pines, which are at first dominant, pass into Garigne, the Provençal name for the shrub association of limestone hillsides. Amid the pines the following Mediterranean plants are frequent: Rhus Cotinus, Pistacia Terebinthus, Coronilla juncea, spartium, Cistus albidus, Teucrium Polium, the queer little blue aphyllanthes and the porcelain blue Linum narbonense. Higher up are Lathyrus latifolius, Astragalus monspeliensis, coris, Stipa penanta, Leuzea conifera, Cephalanthera rubra, Pyrethrum corymbosum, Antirrhinum latifolium. At just above 2,oooft. the handsome Vicia onobrychioides, Helianthemum polifolium, genistas and orobanches, Bartsia latifolia, Allium roseum, Limodorum, Catananche cœrulea, Epipactis atrorubens, Teucrium aureum, Arenaria capitata and Linum salsoloides are among the plants to be seen in greater or less quantity.

On a grassy plateau before arriving at the Col, the deep blue shrubby Lithospermum fruticosum, very similar to L. prostratum, will be noticed. The vegetation of the Pass is especially noteworthy for small prickly undershrubs and greyish plants, simulating the broken limestone upon which they grow. When at Sainte-Baume at the end of June, 1913, a band close to Plan d'Aups was covered with Lathyrus canescens, one of the loveliest peas, with large pale purple flowers.

In the pine woods of the plateau are other interesting plants, and a greater variety can be seen in the great Forêt domainale de Ste. Baume, said to be one of the most interesting mixed forests in Europe. Tansley refers to it in his "Forests of Provence" in the *Gardeners' Chronicle*, 1912. The undergrowth is similar to that of a limestone wood in Switzerland, and comprises Lithospermum purpureo-cœruleum, Ruscus aculeatus, A. Hepatica, Coronilla Emerus, Lilium Martagon, etc. Among shady rocks at about 2,5ooft. the handsome Saxifraga lantoscana reaches its western limit in Europe. Another rare plant, Senecio Gerardii, only known in France and much like a green-leaved S. Doronicum, may be looked for on the ridge leading to the Croix aux Béguines, where the flora is very rich; and the rocks of the Col du Pillon are clothed with the rare silvery Paronychia capitata var. Kapella.

The Sainte-Baume range forms an attractive and quite unique place for the flower lover to visit on his return from a late spring sojourn on the French Riviera, or if he finds himself in May or June at Marseilles or Toulon with a few days to spare. Further information can be found in a paper by the writer in the *Gardeners' Chronicle*, 1915, page 49, *et seq.*, or in Dr. Mader's "Le Massif de la Sainte-Baume," in Malpighia, Vol. XX, 1906.

The Maritime Alps have the advantage of being accessible to the plant collector perhaps a month earlier in summer and later in autumn than the Swiss Alps. The alpine, or Argentera, district west of the Col d'Altaire, is separated from the lower Ligurian mountains, which are more Apennine in character, by the famous Col di Tenda, over which the great road runs from Nice to Cuneo and Turin. I believe the railway is now continued through the Col di Tenda southwards to S. Dalmazzo and Ventimiglia.

Among the Ligurian hill villages above Bordighera a week or two in June might advantageously be spent at Pigna (Hôtel de Paris), which is prettily situated among olives and sweet chestnuts, 1,oooft. above the sea. Bajardo is another village a little higher. The chestnuts extend to about 3,oooft. on Monte Toraggio, where they give place to pines and larches; and the olive reaches about 1,8ooft. in this district. Visitors should take with them the late C. Bicknell's useful little "Flora of San Remo and Bordighera," 1896. Two interesting ferns Cheilanthes odora and Pteris cretica, are well established near Pigna; and the three handsome lilies, LL. croceum, pomponium and Martagon, adorn some of the grassy slopes. L. pomponium grows up to 6,oooft. on some of the mountains, as on Monte Wraggio, a beautifully proportioned rugged mass, whose upper slopes in June, before the pastures are mown, afford a host of brilliant flowers. These alps, extending to 6,oooft. on Toraggio, are bedecked with gentians, anemones, Orchis globosa, ustulata and sambucina, Cerinthe minor, Narcissus poeticus, Pedicularis comosa and P. gyroflexa. There are some big patches of peony on the highest slopes, and on the rocks are various saxifrages, including the endemic S. cochlearis and the even more beautiful S. lingulata.

San Dalmazzo di Tenda, 2,284ft., is a village with a good Italian hotel, beautifully situated at the junction of two lateral valleys with the main valley, which I can strongly recommend for a longish stay in June or July. I can remember nothing against it at midsummer except the flies, but against such pests could be put the charm of the fire flies in the evening. San Dalmazzo wants the pen of a Farrer or the poetic genius of a Correvon to do it justice; but I think our late friend R. Farrer knew St. Martin Vésubie (formerly called St. Martin Lantosque), better, and he certainly wrote more about it in "Among the Hills." San Dalmazzo has greater variety however. A step across the road leads into the shade of an ancient chestnut grove in which are brilliant campanulas, Astrantia major, Epipactis atrorubens and latifolia hybridising, Thalictrum minus and Cephalanthera rubra 2ft. high. On the rocks by the roadside are pinks and helianthemums in variety, Lilium croceum and the white-rayed Orlaya grandiflora. Across the river are limestone cliffs and screes where many good things are to be found, including Micromeria piperella, Potentilla saxifraga, Asperula hexaphylla and Thymelæca dioica. Butterflies of many kinds are also numerous.

Among the rocks and thickets above the road to Briga, a delightful village and suitable place to get tea on a hot afternoon, the handsome spikes of Delphinium fissum may be seen if well searched for, and the curious Telephium Imperati, which botanists were long doubtful how to classify, grows on the roadside wall and among broken limestone. Here also are Inula montana, Vicia onobrychioides and the two trigonellas, TT. monspeliaca and gladiata.

(Photograph by permission of the Swiss Federal Railways.)

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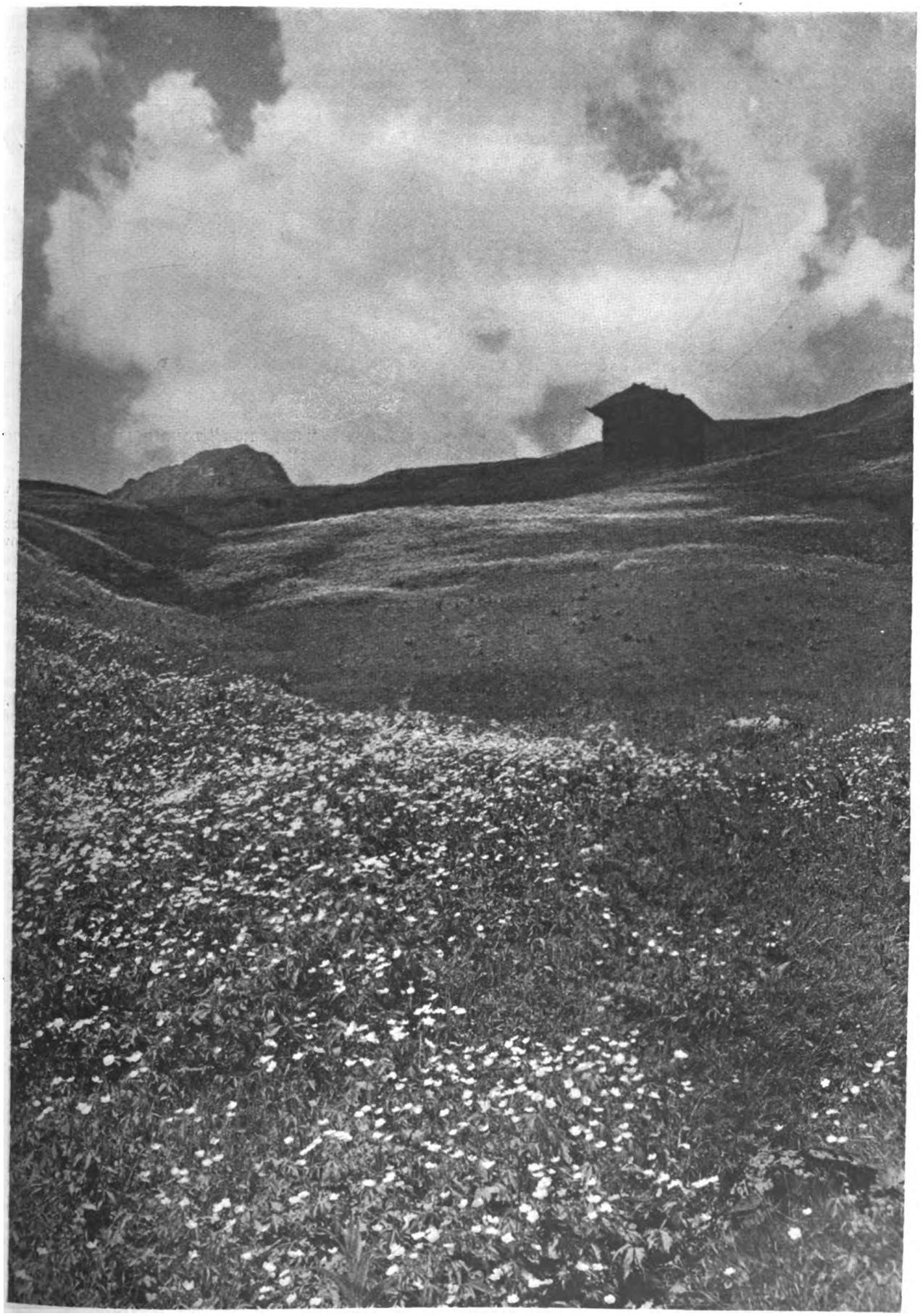

A TYPICAL ALPINE MEADOW IN THE HIGH HILLS, WHICH IN EARLY SUMMER IS ALWAYS CARPETED WITH FLOWERS.

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THE SELECTION OF A LAWN MOWER

WITH NOTES ON ITS UPKEEP

IN initial outlay the mowing machine is perhaps the most expensive single item in the whole range of garden appliances, and there can be no doubt that the selection of a reliable machine is a matter which requires careful consideration. "Penny wise and pound foolish" is an old, but very true, saying, and the small saving which is often effected by the careless purchase of a cheap machine of doubtful origin usually proves to be very false economy. A bargain (?) of this nature is seldom, if ever, satisfactory, and the money saved in original expenditure is generally quickly swallowed up by bills for repairs and replacements. Nor does the question of expense entirely disappear with the purchase of the machine. Even though one buys the finest type of machine obtainable, a lot will depend on the manner in which it is treated if the cost of upkeep is to be kept low and the standard of efficiency high. More damage can, undoubtedly, be done in a few weeks by faulty adjustments, careless usage, slovenly inattention, amateur tinkering, etc., than by many seasons of fair and honest work. Cleaning after use is an operation which takes but a very few minutes, and should never be omitted. One cannot expect good service or light running from a machine when the bearings and gears are clogged with mowings and dirt, or the cutting knives dulled and rusted from constant contact with wet grass. In spite of this, many people are content to keep their machine on about the same level as their dustbin. Cleaning, if done regularly, is a simple task, but it nevertheless adds 100 per cent. to the efficiency of the machine when in use. An old spoke brush is one of the handiest things for removing most of the dirt and clippings, while a disused tooth brush, or even a thin piece of wood, will serve to reach the more inaccessible parts of the mechanism. After cleaning, wipe all parts, particularly the knives, with an oily rag and give the bearings a slight lubrication with a good oil. Use an oil which is neither too heavy nor too light in substance and, above all, use it regularly. The main object of oil is to lubricate the bearings and keep them from running hot and dry. It is not intended to be used as a bath, and to scatter it lavishly over all parts of the machine will be found an expensive procedure. The result of this can often be seen in filthy blotches of grease dropped here and there on the grass when the machine is in use. Superfluous grease also acts as a magnet to dust, a fact which will be quickly realised when cleaning takes place. Use oil sparingly but regularly when the work is actually being done, and see that what you do use goes in the right place. Every hour is not too often to use it when the machine is running, and the beneficial effect will be felt by those in charge.

Accurate adjustment is necessary for good work, and the short time spent in obtaining this will be found worth while. It is essential that the cutting edge of the knives should rotate in perfect alignment with the shear blade, otherwise the lawn will assume a ribbed effect after mowing. In most of the modern types simplicity of adjustment is an important feature, so that this problem should not present many difficulties to the majority of people. Prior to and during mowing operations a sharp lookout should be kept for stray stones and other foreign matter, which, however careful one may be, often find a resting place on the grass. They should be immediately removed or serious damage may be done to the blades and mechanism if they come in the path of the machine when working.

Many methods have been advocated for sharpening dull blades, but in practically all cases they can only be described as unsatisfactory. This is a job which is beyond the power of the average handyman, who, as a rule, is capable of making more noise with a file or grindstone than he is of performing this delicate operation correctly. It is perfectly correct to say that it is no more sensible to attempt the sharpening of these blades with a file than it would be to try setting one's favourite razor by the same method. To grind a rotary cutter accurately demands considerable skill and the use of an elaborate plant. This can seldom be obtained locally, and in most cases it will be wiser to return the mower periodically to the original makers, who can always be depended upon to make a thorough overhaul in a skilful manner.

The many types of horse, hand or motor-power machines on the market to-day offer a very wide field from which to choose, and the final selection will, of course, be governed by the size and nature of the lawns on which the mower is to be used. For those who already possess a trustworthy machine but who feel that hand mowing is too tedious and fatiguing, there is the choice of an "M. P." or a "Rendle" motor attachment, either of which can be fixed very easily to most standard makes of mowing machine or roller. Each of these consists of an independent power unit, the working of which is so simple that anyone can learn to attach or drive it in a few moments. All physical labour is abolished and the operator sits and guides the machine as it runs. A very large area can be covered in a short space of time, and the running charges of each are exceptionally low. The number of hand and pony machines is legion, and space will not allow of details being given regarding the faults or virtues of each one. Green's "Silens Messor" or "New Royal," Ransome's "Automaton" or "Lion," and Shank's "Caledonia" or "Talisman" are all very excellent types which are too well known to need description. Furthermore, they are made by firms who have specialised in the manufacture of mowing machines of all types. Others worthy of mention, whose makers are of perhaps more recent introduction to the gardening world, are the "J. P." and the "Qualcast Major." The former can only be described as a *model de luxe*, for all parts run on ball bearings, while the gears, etc., are encased in dustproof covers and run in oil. The roller is in three sections, which form a differential action when the machine is turning, thus preventing the tearing up of the turf. Both front rollers and rotary cutters are governed by two handwheels, which render adjustment a very simple matter. The "Qualcast" is not built on quite such elegant lines but is designed for good hard work, and

FIG. 1

FIG. 2

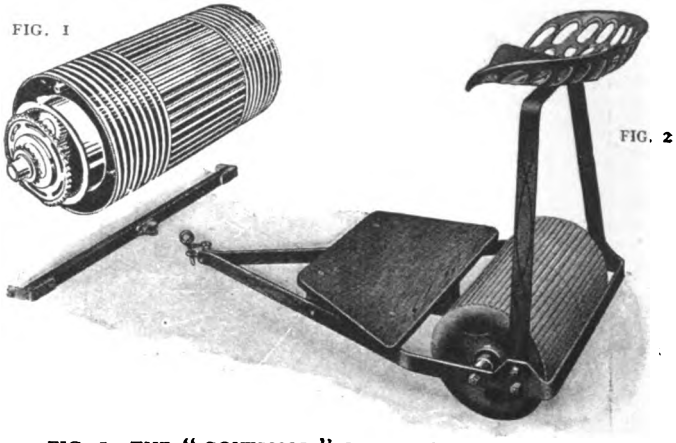

FIG. 1, THE "GOVERNOR" LAND ROLLER. FIG. 2, THE "DENNIS" TRAILER WITH ADJUSTABLE SEAT.

"M. P." PUSHING A MOWER AND PULLING AN ORDINARY GARDEN ROLLER AT THE SAME TIME.

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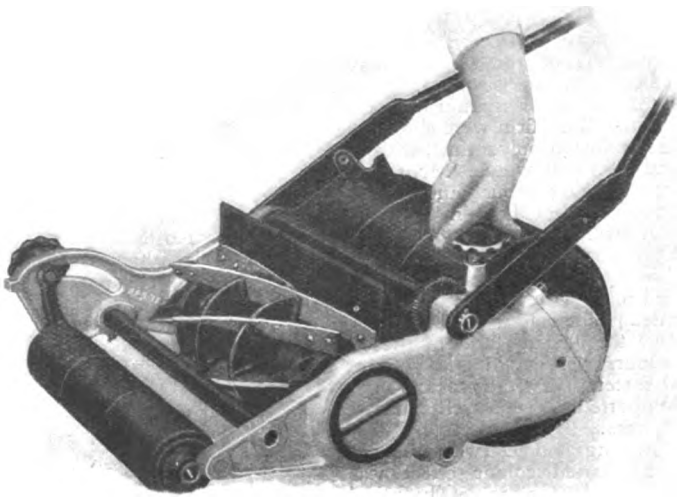
all parts are guaranteed. All of the machines mentioned are British made and, quite apart from this excellent guarantee of good construction, this reduces to a minimum the trouble and expense of obtaining spare parts when required.

For cutting large areas the motor mower is gradually displacing the horse, pony and larger types of hand machine and, while at first glance the high prices charged for up-to-date models seem to render them prohibitive to all but the very wealthy, this is not the case. The additional outlay is usually saved during the first season by their economical working. With most types it is possible for one man or boy to mow an area of 1,000 sq. yds. in from fifteen to twenty minutes at the trifling approximate cost of 2d. for fuel. In this section we again find the names of Green's, Ransomes and Shanks prominent, for these firms, bringing their vast experience to bear upon the subject, have produced a very extensive range of motor machines for all purposes, ranging from 1½ h.p. to 4¼ h.p. The lighter types of from 16in. to 20in. cut are eminently suitable for use on small sports grounds and private gardens, while the larger and heavier machines are more adapted for use on larger estates and parks. The choice is by no means limited, for the following are all very excellent machines:

The "Atco" is a product of Birmingham. An important feature of this machine is the fact that provision has been made for fitting a special turf cultivator, to be used in conjunction when mowing for the purpose of aerating the grass.

The "Governor," made at Wolverhampton, has many outstanding features. One of the main points is the cross serrations on the land roller, which, as shown in the illustration on opposite page, is a three unit item. This undoubtedly provides a great safeguard against skidding, slipping or otherwise tearing the turf when turning or working on sloping ground.

The "Dennis," manufactured by the famous firm of motor lorry and fire engine fame, hails from Guildford. It is, from all points of view, a machine which can be relied upon to give every satisfaction.



THE HANDWHEEL ADJUSTMENTS IN THE "J. P." MOWER.

In most cases the motor controls are conveniently fixed to the handles and a clutch fitted to throw the rotary cutter out of gear when the machine is wanted for rolling only. A trailing seat can be purchased for use with most makes if this is thought necessary. J. C.

ALPINE PLANTS AT VINCENT SQUARE

As befits the season, alpine plants were an important feature of the Royal Horticultural Society's Show at Vincent Square, Westminster, on April 21st and 22nd, and a large and varied collection was shown either as pot plants or, more naturally, set in groups and drifts in small rock gardens.

Although the exhibit was of pot plants and pans, the fact that these receptacles were set among small pieces of rock gave the large collection from the gardens of the Hon. Vicary Gibbs, Aldenham House, Elstree, an appropriate setting. The beauty of the exhibit was also enhanced by the mounds of deciduous azaleas which pleasantly relieved the general line of the alpines. Azalea Yodogawa Double Mauve is an attractive shrub, about 2ft. high and well furnished with relatively large flowers; while the batches of Azalea Amœna varieties provided agreeable colouring. The central alpine was a large pan of Primula denticulata. Other attractive examples of the same genus were P. chionantha, of fairly robust habit and nearly white flowers; the yellow P. Forrestii and, P. rosea grandiflora, a valuable variety of a beautiful species. The saxifrages included Aldenham Pink, Dr. Ramsey and Letchworth Beauty. There were various anemones, the bright single red Bellis sylvestris, a delightful form of Androsace carnea Laggeri and a most attractive little bush of Daphne neapolitana. This fine exhibit received a gold medal.

Next in point of interest was a collection from Mr. Clarence Elliott. Although we did not care for its concrete bordering, we were charmed with the breadths of lovely white-eyed blue flowers of Gentiana verna, and, realising the use of the receptacle, we forgave its ugliness. At the other end there were some plants of Viola Bluestone, whose name is quite descriptive of the uncommon shade of dark blue colouring. Petrocallis pyrenaica was a desirable plant, though the principal feature was the auriculas, which were most fascinating. Mrs. Wilson, pubescens Ladybird, Zuleika Dobson, were all of great decorative value. Among the saxifrages there was an admirable pan of Griesbachii, which in its uncommon habit and colour of the flower stems was only approached by the pans of S. Gusmusii, shown by Messrs. R. Tucker and Son, who also had two fairly uncommon daphnes in D. rupestris grandiflora and D. Cneorum alba.

Armeria cæspitosa is a sturdy little thrift which blooms very freely. Among other growers Messrs. W. H. Rogers showed it and they also had a good batch of the dwarf blue-flowered Iris azurea. The dwarf irises were well shown by Messrs. Barr and Sons, whose plants, only a few inches high, bore quite large flowers of considerable beauty. Iris obliensis Socrates, I. pumila cœrulea, I. elegans and I. lutea maculata are the names of only a few of them.

The daisy-like Helichrysum bellidioides which was shown by Messrs. Carter Page and Co. is a pretty little plant of spreading habit. They also had the charming little Cyclamen repandrum and Primula farinosa, which seemed almost like a smaller and hardy variety of P. malacoides.

A couple of perfect little bushes of the delightful Daphne Cneorum were included in his exhibit by Mr. F. G. Wood, who also staged the dark blue flowers of Muscari paradoxa and the very quaint Fritillaria pyrenaica. The most uncommon snake's-head lily in the Show was F. latifolia, of almost evil yet fascinating appearance. This and the greenish-flowered F. acmopetala were brought from the noted Colesbourne Gardens by Mr. W. H. Walters, with other rare and interesting plants. Euphorbia sikkimense is very attractive in the vivid colouring of the stems and on the midribs of the leaves. Morea spathacea is much like a slender, graceful iris. Although not hardy, the long tubular flowers of Cantua buxifolia were most beautiful. This is a cool greenhouse climber which will thrive in a northern aspect. Many years ago some gardeners grew it in large pots trained as umbrella-shaped specimens, a method which showed off the uncommon flowers admirably.

Besides a great many rhododendrons of the type associated with the warmer parts of the country, Mr. G. Reuthe brought, in a pan, several plants of Rhododendron kamtschaticum. This is of exceedingly uncommon appearance. The almost minute, deciduous bushes are of delicate appearance, and they throw up stems only a couple of inches or so high, crowned with relatively very large saucer-shaped flowers of bright rosy purple colour. Sanguinaria canadensis is an elegant white blossom of windflower-like appearance. Calypso borealis was another attractive plant in the same exhibit, which also contained a brilliant mass of Anemone fulgens.

Vivid colour in dwarf plants was also provided by the masses of a red daisy well named Ball of Fire and shown by Messrs. B. Ladhams, Limited. Alice, delicate pink; and Shirley, a deep pink, are good companion sorts.

The dwarfest of brambles was to be seen in Rubus arcticus on Mr. M. Prichard's stand. It is only a couple of inches or so high and crowned with round rosy flowers: a drift in the rock garden would be exceedingly effective. He also brought a fine batch of the lovely blue Gentiana acaulis and Æthionema Warley.

Ranunculus amplexicaule, a graceful white buttercup, which is relieved by the yellow centres, was shown by Messrs. Waterer, Sons and Crisp, who also had an attractive variety of Fritillaria Meleagris, Shortias, Aubrietia rosea splendens, and Saxifraga bathoniensis.

Messrs. Blackmore and Langdon were exhibiting a fine strain of polyanthus. The sturdy plants carried a mass of bloom, some flowers measuring nearly 1¼ins. across. There were yellows, whites and velvety

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crimsons, and a flame-coloured polyanthus streaked with yellow was very attractive. Messrs. John and A. H. Crook had a varied collection of polyanthus. The substance and shape of the flowers were noticeable rather than the size. Large-sized flowers are not always a meritorious feature in polyanthus. This firm were showing a very good deep crimson polyanthus, with a well defined and clear yellow eye. Mr. G. A. Miller also was showing robust and well grown polyanthus of a good strain.

A striking effect was produced by Messrs. Sutton and Sons' excellent exhibit of May-flowering and Darwin tulips. A large oval bed filled with many varieties of both classes in exquisite colouring showed to great advantage the elegant form of these tulips. The colours were vivid and yet not harsh, and the stems of nearly 24ins. long supported large, well shaped flowers. By combining May-flowering and Darwin tulips a more varied colour effect was produced, for some beautiful yellow and bronzy orange May-flowering varieties, such as Bouton d'Or, Inglescombe Yellow and Bronze Queen, were included, whereas if only true Darwin tulips had been used there would have been no yellows. King Harold was a fine deep crimson Darwin; and Farncombe Sanders, a rosy red, was about the longest-stemmed variety exhibited. With the exception of Prince of Wales and Rev. Ewbank, all the varieties exhibited were exceedingly beautiful and formed a wealth of colour. Among them were Afterglow, a charming shaded apricot; Le Reve, a pinkish shot-silk colour; City of Haarlem, a crimson variety with a white edge; and three May-flowering tulips—Bacchus, a deep wine colour; Grenadier, a brilliant scarlet; and Panorama, an unusual bronzy red. King George V, a lovely cherry red; Zomerschon, a white streaked with cerise; Princess Elizabeth, Orient and Prince of Orange were a few more of the best varieties.

The reason that only a few roses were exhibited at the Hall this week and that some of these were not in first-class condition, is that the majority of rose growers are saving their best for the National Rose Society's Show on April 24th. One rose which attracted particular attention is a comparatively new variety, raised by Mr. Walter Stevens and exhibited by Messrs. Stuart Low and Co. This variety, called Roselandia, is a sport from Golden Ophelia, but has a larger flower, the colour is deeper and the stems are stiffer and more upright. The pointed bud is deeper yellow at the base. It will probably be a very popular variety in the near future. Messrs. Stuart Low and Co. were also showing healthy and fine specimens of such varieties as Padre, Sovereign, Phœbe and Mrs. Beatty. Messrs. Benjamin R. Cant and Sons were exhibiting Lady Wakefield, an excellent rose of a salmon-pink shade and sweetly scented, but its fragrance did not rival that of its neighbour, the well known variety Covent Garden.

Dwarf polyantha roses in pots, grown as bushes or standards, are very decorative and are profuse bloomers. A good exhibit of this type of rose was shown by Messrs. Cutbush and Sons, who included in their collection such varieties as Edith Cavell, Orange King, Salmon Queen, Orleans Rose and Tausendschön. Orange King is quite a break in colour, the pinkish orange flowers are small and very dainty. Salmon Queen is a paler shade; and Orleans Rose is of a similar colour but darker, and so lacks that softness in tint which adds to the beauty of Orange King. Mr. J. H. Pemberton was also exhibiting dwarf polyantha roses. One of the best among his roses was Rudolf Khuis, a red form of Ellen Poulsen; the flowers seem to bloom quite as freely as Ellen Poulsen and at the same time are a little larger. Koster's Orleans, a brilliant red; Eblouissant, another red; Echo, a delicate flesh pink with crinkled petals; and Juliana, a coral pink, were all admired.

There was a marked improvement in the carnation exhibits. In general condition and in colour and size, the blooms shown were much superior to those exhibited at Vincent Square during the past few weeks. The three well known firms of Messrs. Allwood Brothers, Messrs. C. Engelmann and Messrs. Stuart Low had good collections of well grown carnations. Topsy, Janet, Lady Hindlip, Sir Philip Sassoon, Edward Allwood, Shot Silk and Michael Stroop were some of the varieties exhibited.

THE PERFECTLY FORMED YELLOW BLOOMS OF ROSE ROSELANDIA.

Among the other exhibits were:

Anemones.—Messrs. R. Gill and Sons, and Reamsbottom and Co.

Echiums.—Messrs. Sutton and Sons.

Fritillaria.—Mr. W. H. Walters.

Fruit.—Messrs. Bunyard and Co., and Westmacott and Co., Limited.

Greenhouse Plants.—Messrs. L. R. Russell and Co.

Hardy Plants.—Mr. B. Ladham.

Hydrangeas.—Messrs. G. and C. Cuthbert.

Orchids.—Messrs. Stuart Low and Co.

Narcissi.—Messrs. Barr and Sons, R. H. Bath, and W. F. M. Copeland.

Primulas.—Mr. J. Douglas.

Rhododendrons.—Messrs. R. Gill and Sons.

Shrubs and Alpines.—Messrs. Cutbush and Hillier and Sons.

Topiary.—Mr. John Klinkert.

Tulips.—Maytham Gardens.

Violets.—Mr. Baldwin Pinney.

NEW AND RARE PLANTS.

HIPPEASTRUM PINK BLOSSOM.—A magnificent variety bearing two large and showy flowers on a stout leafless scape. The flowers were almost 7ins. across and of good form. The spreading petals were of a delicate shade of pink shading to white in the throat. This variety is characteristic both from its colour and the beautiful markings on the petals. Award of merit. Shown by Sir George Holford, Westonbirt.

HIPPEASTRUM ICEBERG.—Another handsome variety bearing two beautiful white blooms. The spreading perianth segments, all equal in size, are pure white in colour, shading to light green at the base. Award of merit. Shown by Sir George Holford.

HIPPEASTRUM BLACK BEAUTY.—This variety bore two flowers slightly smaller in size. The segments of the perianth were of a dark red colour, which became darker towards the inside of the throat. The segments were all of the texture of what one might term a satiny velvet, lending to the flower a handsome appearance. Award of merit. Shown by Sir George Holford.

STACHYURUS PRÆCOX.—Flowering sprays of this hardy shrub, a native of Japan, attracted considerable attention. The flowers are borne from fifteen to twenty together in stiff drooping racemes which are from 3ins. to 4ins. long. The flowers are small and pale yellow in colour. Award of merit. Shown by the Hon. Vicary Gibbs.

STACHYURUS CHINENSIS.—The Chinese representative of the genus, introduced to this country by Wilson in 1900. There is little difference between the species, save that probably this species is less elegant than its Japanese cousin. The flowering sprays, bearing almost the same number of flowers as præcox and of the same length, were not so stiff, but more or less dangled or flopped from the branches. The flowers are again small and pale yellow in colour. Award of merit. Shown by the Hon. Vicary Gibbs.

BERBERIS STENOPHYLLA COCCINEA.—This variety of one of the most useful hybrids in the berberis family should prove to be a most useful one from the commercial point of view. The flowering sprays exhibited showed the grace of habit of the type combined with its floriferousness. The interlacing branches bear numerous flowers of a fine rich red colour which wreathe the stems from end to end. Award of merit. Shown by the Hon. Vicary Gibbs.

PRUNUS SARGENTII.—Flowering sprays of this most beautiful cherry merited the attention it received. The branches were laden with blossoms of a lovely deep blush pink colour in clusters of four to six. The flowers are carried on long stalks, from which they dangle gracefully. Each is typically rosaceous in shape, carrying stamens of a deep rose colour. It is undoubtedly one of the most handsome species we have in

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cultivation in this country. First-class certificate. Shown by the Hon. Vicary Gibbs.

RHODODENDRON SPÆRANTHUM.—A delightful species of the Cephalanthum series discovered by Forrest in 1914. It is a dwarf, somewhat twiggy shrub, only reaching 2–3ft. in height. The leaves are small and aromatic. Numerous small flowers of a whitish to rose colour are clustered together on the terminal branches, resembling a daphne. Award of merit. Shown by the Marquess of Headfort, County Meath, Ireland.

RHODODENDRON ELSÆ.—This is a hybrid between R. grande and R. Falconeri, which combines the graceful and excellent qualities of these two species. Large bell-shaped flowers 2ins. or so across are borne in a somewhat tight truss. They are pure white in colour, with a deep wine-coloured blotch at the base. Award of merit. Shown by Mr. George Reuthe, Keston.

RHODODENDRON MURIEL —This is another handsome hybrid, bearing large and fairly tight trusses of beautiful white waxen bell-shaped flowers. At the base of each of the petals is a deep crimson blotch. The petioles are characteristically hairy. The foliage is of the Falconeri type, being covered with a rust-coloured felt on the underside. Award of merit. Shown by Lady Loder, Leonardslee.

RHODODENDRON GARNET.—This is one of the Javanese hybrid rhododendrons between R. javanicum and R. jasminiflorum var. Garnet. It has all the characteristics of this class, forming a twiggy bush carrying loose trusses of deep red flowers which are flat and spreading. It forms rather a fascinating pot plant, providing a good contrast between the deep colour of the blossoms and the light green of the foliage. Award of merit. Shown by Sir George Holford, Westonbirt.

ROSE ROSELANDIA. — A charming new variety, a sport from Golden Ophelia, upon which it is certainly an improvement—to be added to our already extensive list of hybrid teas. The well formed and large blooms are borne singly on long erect and stiff stems. They are of a sulphur yellow colour, deeper than the original, and have a slight fragrance. The habit of growth and the foliage are good, and showed the results of careful cultivation. It appears to be a free-flowering variety which should find popularity among rose enthusiasts. Award of merit. Shown by Messrs. Walter Stevens, Limited, Hoddesdon.

IRIS WATTII.—A species which comes from Assam and south-western China, which shows an extraordinary habit of growth, long flowering stems, 2ft. or more in length bearing a tuft of five to seven tiny strap-shaped leaves, being formed every year. These bear a branching inflorescence of white flowers. In shape they are similar to those of Iris japonica. The falls are characterised by bearing an oblong blade with a wavy edge, with a small orange blotch. The branching style is to be seen rising prominently in the centre of the flower. Award of merit. Shown by W. H. Walters, Cheltenham.

GLADIOLUS MACKINDERI.—This handsome variety bears a loose spike of flowers on stems almost 3ft. in height. The flowers are of a graceful form and are a delicate fiery red in colour. Award of merit. Shown by Sir John F. Ramsden, Bulstrode Park, Bucks.

ORCHIDS.

ODONTIODA ORESTES VAR. BUTTERFLY (O. Coronation × Odontoglossum percultum).—A showy hybrid with a graceful spike of seventeen flowers of medium size, the segments blotched with red-scarlet, the petals having an additional zone of similar colour near the margin; labellum with a whitish apex, and the spiny crest bright yellow. From Mr. J. J. Bolton, Claygate, Surrey. First-class certificate.

LÆLIO-CATTLEYA ORANGE BLOSSOM VAR. MAGNIFICA (L.-C. Elinor × L.-C. Trimyra).—One of the most attractive of Lælio-Cattleyas, the spike bore five flowers of a uniform apricot-yellow colour, the labellum slightly darker and with an orange-yellow throat. From Lieutenant-Colonel Sir George Holford, K.C.V.O., Westonbirt, Tetbury, Glos. Award of merit.

CATTLEYA SCHRŒDERÆ VAR. HERCULES.—Although this plant has been cultivated in England for many years, it is not until the present occasion that its flowers have been seen at their best. It belongs to the alba section, the broadly developed segments being entirely without colour, except for the usual light orange-coloured area on the labellum. From Messrs. Stuart Low and Co., Jarvisbrook, Sussex. Award of merit.

THE MIDLAND DAFFODIL SHOW

THE twenty-fifth show, or, to be more accurate, what ought to have been the twenty-fifth, had we no war, took place on April 22nd and 23rd in its old home, the Botanical Gardens, Edgbaston, Birmingham. No place in the world has quite the same claim to the tender regard of all lovers of the daffodil. It was here that the first daffodil show, I think I may say in the world, was held in the year 1893 at the suggestion and under the guidance of the late William Hillhouse, my old Cambridge coach for the Science Tripos, who with the passing of the years had now become Professor of Botany in Birmingham University and secretary of the Botanical Gardens. These early shows were the eocene times of daffodil shows. To be somewhat Irish, there are still with us living fossils of this distant past. Deepest down in the strata is my good friend Duncan Pearson—Daffodil Pearson his friends call him. Present as an exibitor at this first show, he has been at Birmingham every year since in that capacity or as a visitor; first in the Hillhouse era, then in the Sydenham era, and lastly in the Smith era.

To mark this occasion the Royal Horticultural Society sent a deputation for the third time in our history to visit the Show. Actions speak louder than words. Their verdict was expressed by their awarding no fewer than three gold medals, one silver-gilt Flora, silver-gilt Banksian, beside others of lesser value. No bad record for any exhibition. This twenty-fifth anniversary was also marked by the giving of the gold medal of the Society to Mr. Herbert Smith. Only once before has this signal honour been bestowed on a member, and that was when the Rev. G. H. Engleheart retired from the office of president. Mr. Smith has been secretary ever since the Society was founded by Robert Sydenham, and the amount of work that he has done for us nobody knows except who, like myself, are familiar with its internal machinery. It was a proud day in my life to preside as president at the official luncheon to the Royal Horticultural Society's deputation (Messrs. E. A. Bowles, W. R. Dykes and R. Cory) and to make the presentation to Mr. Smith. In my little speech I could not refrain from tilting at the article on white daffodils which had appeared in the *Morning Post* on the day before (April 21st). I can only suppose that the writer must have a grudge against the editor, for the little bit of it that really touched upon white daffodils was as full of errors as an egg is full of meat, and that the editor never read it or was totally ignorant of daffodil history. Mr. Richardson did not raise Beersheba. It was raised by Mr. Engleheart. White daffodils are not a twentieth century novelty, as anyone knows who has ever looked at his Parkinson or who is familiar with the work of William Baylor Hartland of Cork, or is aware that it was the Narcissus poeticus that was first called a daffodil.

Were everyone of that writer's opinion, there would be " no use " for daffodil shows—that is to say for man-made flowers. Why, I ask, do people so often " sware by " flowers that are the result of impersonal agents and pooh-pooh those made by living agents? We do not all do this, and so we have our daffodil gatherings such as we have just had at Birmingham.

Beersheba, the fine white trumpet of Engleheart, could be compared on this occasion with old varieties like albicans. I give the unknown writer a present of all the albicans, as I suppose he would give me all the Beershebas—*Chacun à son gout*. Albicans was one of a group got together at considerable trouble by Miss Pope, a daughter of the man who will go down to posterity as the man who set the big price ball rolling when he gave £100 for four bulbs of Will Scarlett. It was composed of the old varieties that were in vogue when the Midland shows started, *e.g.*, Edward Hart Beatrice, William Wilks, Agnes Barr, Grand Duchess and Hodsock's Pride. Few know them now. Yet I can remember our first shows when we thought as much of some of these as we now do of Royalist, Kantara, Dinkie and Beauty of Radnor. There were some wonderful flowers on view this year. One cannot name them all, or even a tithe of those I would like to do. Some for the very good reason that they are at present only under numbers; others because the space allotted me is not elastic. Still, I will do what I can, and if I seem to ignore the fine groups " not for competition " and the good individual exhibits in the competitive classes, it is not because I could not say much to their credit, but because I have a feeling that readers want to know more about the individuals than the mass.

After our little dinner at the Grand Hotel on the first day of the show, Mr. Herbert Chapman suggested that it would be most interesting for everyone to name what they considered the best flower in the show. We did so, with the result that the giant yellow self incomparabilis Wheel of Fortune came out first, Beersheba and Tenedos (a stellate giant Leedsii) second, with the following as equal third: Mystic, Lily of Rotherside and Resplendent. Wheel of Fortune is featured in one of the pictures that accompany this article. It is a soft yellow self of fine form and symmetrical build, with a slight recurve to the cup. Beersheba is a magnificent white trumpet. Tenedos is a very large giant Leedsii, and I have read that Brodie of Brodie thinks it one of the most remarkable flowers in his unique collection. Mystic is a most dainty small-cupped Leedsii with a conspicuous pink rim to the cup. I do not wonder that Mr. Wilson has been told that it is doubtful if it is not the most beautiful seedling he has raised. Lily of Rotherside is a white Leedsii raised by Mr. Chapman—it is a most refined flower. One must not, however, paint the lily. Resplendent is a striking Barrii or possibly incomparabilis with pure poeticus white perianth and a large red flattish corona irregularly marked with red blotches.

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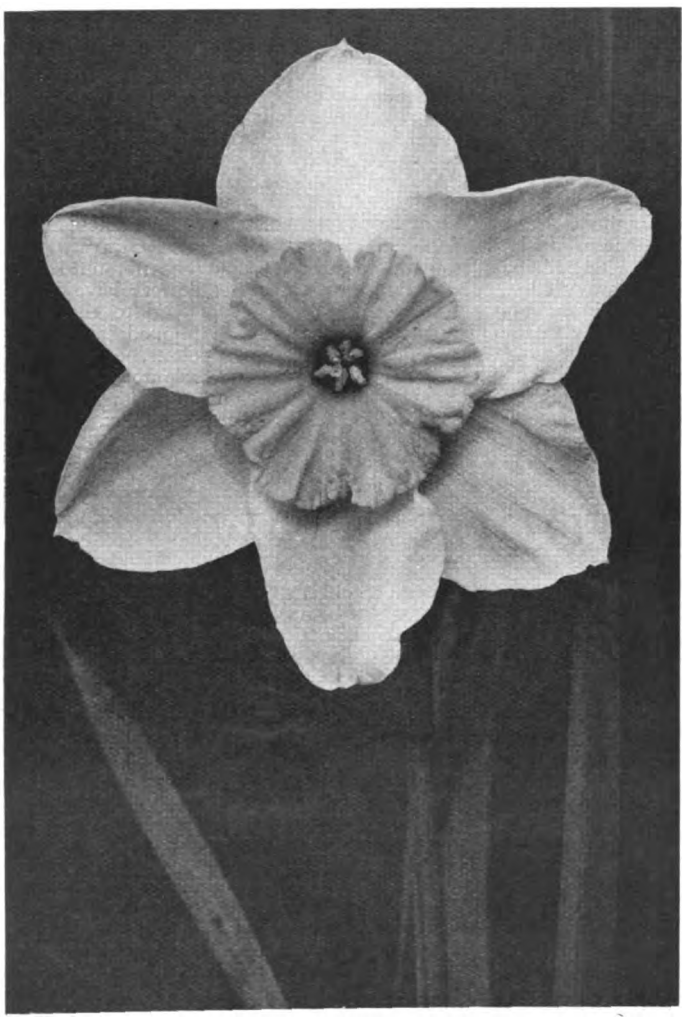
The second of the illustrations is a New Zealander—Silver Plane. It is of a very unusual shape for a Giant Leedsii with its large flat corona, which is of a decided yellow tone. It is one of the best of all New Zealand raised daffodils. This opinion of mine was confirmed by a keen daffodil visitor, Mrs. Trevena from Dunedin. It is recognised in the Dominion as one of poor Mr. Lowe's finest flowers. It was instructive to hear from this lady her opinion of our home flowers compared with those raised there. She said in big yellow incomparabilis and in Giant Leedsiis they were quite our equals, but in all else, especially in big red bowls, we outdistanced them. I have never seen so much good colour in such a small space as in Dr. Lower's group. It fascinated Mrs. Trevena. She always seemed to be in front of it on the second morning. It *was* good. Here is a rough idea of its coloured contents: Ten all red bowls of which Merkara was my favourite; two red (?) perianths, John Peel being the best; five wide bold red edges of which Golconda appealed to me very much. No wonder the group was awarded a gold by the R.H.S.

Among other flowers new to me I noted an extremely taking, very loosely built double white in Messrs. Barr and Sons' group. It will have a future, I feel sure, for decorative purposes. It is named Snow-sprite. Then John Bushby and Gallipoli, with their drooping flowers reminiscent of Will Scarlett, were always catching my eye as I passed them. They are decorative rather than florist in their general appearance.

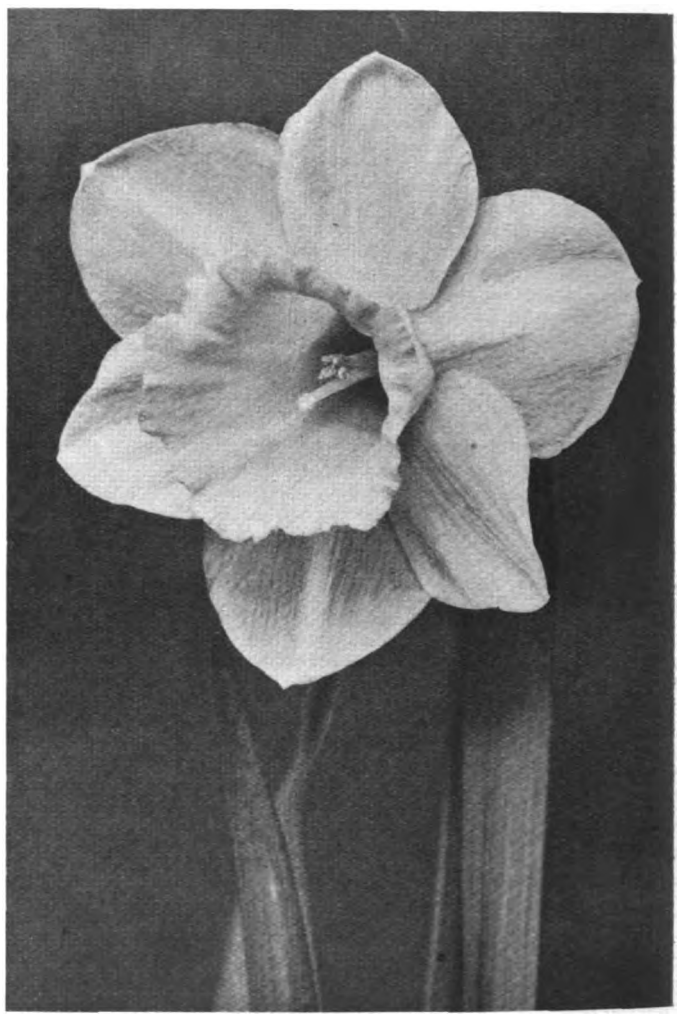
The half-brothers Tapin (a bicolor trumpet) and Primrose Knight (a deep primrose and soft pale yellow trumpet) were examples of what show trumpets should be, fit in every way to associate with the famous Royalist. (What a collection Beersheba, White Knight, Carmel, Royalist, Primrose Knight and Yukon would make!).

Dactyl, a shapely green-eyed poet, and Dinkie, a greeny yellow Barrii, end my selections. Were I in want of bulbs, I would say "Let them all come"—but what about my pocket?

JOSEPH JACOB.



N. SILVER PLANE, A BEAUTIFUL GIANT LEEDSII.



GIANT YELLOW SELF INCOMPARABILIS, N. WHEEL OF FORTUNE.

NORFOLK AND NORWICH HORTICULTURAL SOCIETY

THE spring show of this Society was held on April 16th at the Drill Hall, Norwich. The weather conditions were not at all favourable, consequently the attendance was not so large as expected.

In the classes for narcissi, Captain J. H. Mander took the leading position, staging many of his own raised seedlings under numbers and they comprised almost every type. Many of these numbered seedlings possessed qualities that bid well for further development, this remark especially applying to the trumpet and Barrii sections. Captain Sandys Winsch staged some very good blooms of the leading named varieties

The best collection of flowering shrubs came from Mr. J. A. Christie, M.P., Framingham Manor.

Carnations were not so strong a feature as one might have expected, the best lot being staged by the Misses McLintock. Polyanthus, violets and wallflowers added to the charm of the spring flowers.

Pot plants were a good feature. A group set up by the Norwich Corporation Parks Department was a striking feature of dainty, effective arrangement. Mrs. H. J. Copeman, Westwood House, Norwich, staged splendid examples of cinerarias, both stellata and ordinary, herbaceous calceolarias, azaleas and primulas and she was also first in the fern class for a fine plant of Asplenium australasicum. Mr. J. E. Moxey exhibited a wonderful plant of Azalea fragrantissima. The classes for lily of the valley, mignonette, schizanthus, primulas, etc., brought exhibits that added their quota to the beauty of the show.

Fruit and vegetables were not so numerous as one could have wished to see. Special mention is due to the collection of vegetables staged by Mr. Gordon Lang, Plumstead; it contained fine examples of forced beans, peas and asparagus.

The trade growers did much to enhance the beauty of the show. Messrs. Daniels Bros., Limited, Norwich, had a wonderful array of forced shrubs, besides a fine collection of the best narcissi. They also made a feature of polyanthus and anemones.

Messrs. A. J. and C. Allen, Norwich, had a fine group of roses in pots of several types, the dainty polyantha section being very prominent.

AYTCH PEA.

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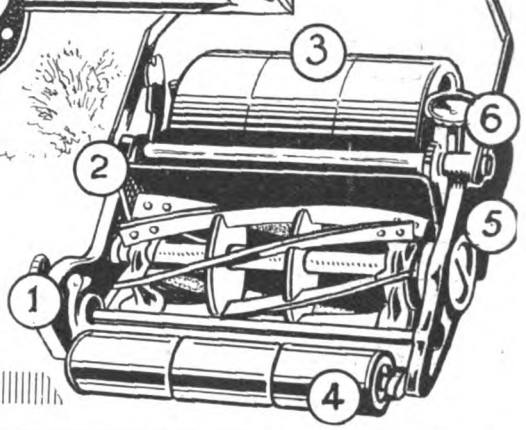

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SIMPLE GARDENING

STRAWBERRIES.

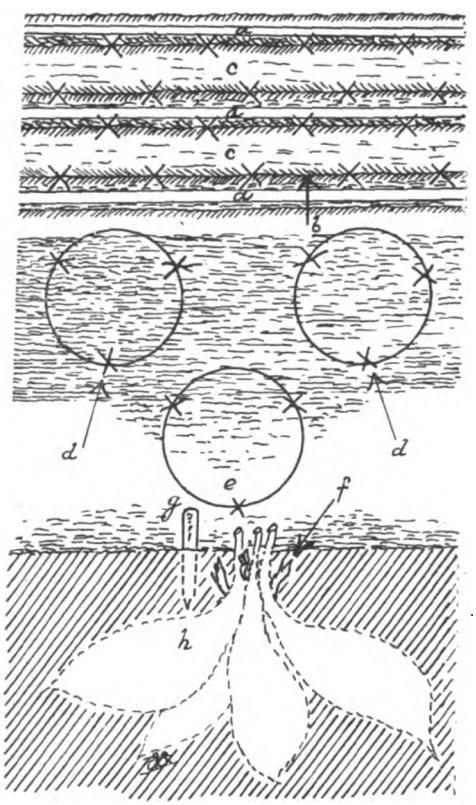
WHERE littery manure is available in quantity it is used liberally in the late autumn to surface-mulch the strawberry beds. It keeps the roots warm, preventing frost reaching them in a severe degree, and, when the thaw comes, acts as a shield to the sun's rays while the soil is in a frozen state. At the present time this littery manure will have lessened in bulk considerably, only the freshest portion of the straw remaining. This will be quite clean, washed by the winter's rains, and should not be disturbed, as it will prevent the ripening fruits getting soiled later on. But it is a wise plan to examine carefully the crowns of all plants now and remove any soil, leaves or other foreign matter found lodging on them, scratched there, possibly, by birds. This is also a good time to put on the final layer of straw, hay or quite littery manure as a protection to the fruits in due course. The litter will get well beaten down before the fruit ripens. Strong plants, put out a year ago last July and August, yield the finest fruits, and if a few are required for exhibition they will be larger if any small side crowns are now removed. Remove also the smallest berries on the central stem while they are quite small. All necessary supports for the nets should be placed in position now. Fine wire netting round the sides saves the string nets from rotting on the ground.

WATER LILIES IN TANKS AND TUBS.

Water lilies are liked by everybody—by those who possess means for growing them on a large scale in very natural surroundings, and by those who possess a small formal garden in town or suburb. Perhaps the majority of the latter are the most enthusiastic. Of course, where convenient, a tiny tank-pond can be cunningly arranged so that it will appear to be quite natural. Whether tank or tub be used, it should be sunk into the ground to half or two-thirds its depth. It looks much better about 1ft. above the ground than placed on the ground level. Half-sized casks, or full-sized casks cut to form two tubs, are the best. The insides should be charred: this is done by placing shavings or paper, saturated with paraffin, in the vessel, lighting and allowing the material to burn till the sides are nicely charred, then suddenly turning over the tub to put out the flames. Tubs so treated will last many years. The position should be one open to the sun; and the water supply, too, must be considered. A tiny trickle in and overflow will be sufficient; failing this, fresh water must be placed in at least twice a week—not necessarily all fresh. Turves, in which the grass has died, should be placed in the bottom, and the plants secured there by placing bricks to prevent the roots being disturbed. The tanks should be cement or stone ones, not iron. Some good varieties of water lilies which are easy to grow are Nymphæa alba, white; NN. odorata Luciana, blush pink; Laydekeri purpurea, deep rosy crimson; and Nuphar luteum, yellow English water lily. These are very reasonable in price.

PLANTING OLD DAHLIA TUBERS.

Perhaps four cultivators plant old tubers to one who plants newly rooted cuttings; but, whether young or old roots are planted, it is advisable to prepare and treat the ground in the same way. Old tubers may be planted early in May, but young plants must not be planted before danger of frost is past—in June. The soil should not be trodden upon after the dahlias are planted. If planted in rows, the following rules should be observed: In the sketch, *a*, *a*, *a* show the narrow paths between



beds *b* and *c*, *c*; two rows in each bed, each row of plants can be attended to without treading on the bed itself. If the young shoots come through the soil early, some of the latter should be drawn up to form a ridge as shown at *b*. Group planting is shown at *d*, *d*, *e*; the crosses represent plants. The lower sketch shows how deep to plant: *f*, young shoots growing through the soil. Labels should be placed clear of the plants, shown at *g*, and not driven into the tubers, *h*. Supporting stakes, too, should be driven into the ground about 16ins. from the old tubers.

HERBS.

With a few exceptions, herbs are not grown as carefully now in private gardens as they were a generation or two ago. The herb garden used to be a feature, and the variety lent additional interest. In large gardens more herbs may be grown than in small ones, but in the latter the following should have place and be well grown: parsley, mint, thyme (common), sage, rue, pot marjoram, fennel, horehound and hyssop. With the exception of mint, all the above may be grown luxuriantly from seeds. Mint should be grown in a naturally moist soil and from roots, not seeds; the roots are similar to those of the couch grass and grow almost as freely in a suitable medium. It is only necessary to lay the roots flat in shallow drills and cover them with 2ins. of soil. Parsley, too, should be grown in a moist soil if it fails in light, and *vice versa*. This plant does fail to thrive in some soil, and it is always wise to grow it in several parts of the same garden. The majority of the herbs like a medium light soil and a sunny position. I may say, here, that herbs should be gathered for storing when in flower, as they are then at full strength. A medium rich soil is best, and the plants should be grown in it in beds or rows. Keep the soil free from weeds, and the herb garden will look all the more inviting. Old clumps of thyme are readily made to yield hundreds of young rooted plants by layering, placing soil in the centre of each clump. Sage seeds attract mice as aniseed does dogs.

PEACH TREES UNDER GLASS

When one enters a peach house one wishes to know what to do to the trees in order that one may reap a full crop of highly coloured fruits. Peach trees may be very successfully grown under glass without any fire heat. Unless forcing is the object in view, I prefer to grow the fruits without fire heat. Young shoots are now growing freely, and it is of the highest importance that they should not be overcrowded. The young shoot of this season becomes the fruit-bearing branch of next year. These young shoots should not be closer together than 4ins.; 6ins. would be better. The fruits, on healthy trees, should be evenly thinned out so that there is one to each square foot, approximately. The fruits retained should be on the top side of the branch, and then it will get the maximum amount of sun, be highly coloured and of richer flavour. Clean trees are essential. Daily syringings do good, judicious watering and feeding too. Ventilation should be well attended to, then we secure those big, thick, dark green leaves so much prized. A small sprinkling of soot on the border once a week will assist in keeping down red spider, the ammonia arising from it being bad for the spider and good for the foliage. Aphides should be kept in check, too, by fumigating regularly once a fortnight. It is most important that every care and precaution should be taken during the next few months so that a good crop of fruit is obtained. Bad methods of cultivation and lack of attention to the crop when pests make their appearance are generally responsible for poor crops.

GEORGE GARNER.

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CORRESPONDENCE

NOTES ON VIBURNUMS.

SIR,—I was much interested in the "Notes on Some Viburnums" in the issue of THE GARDEN of April 18th. It may be of interest to your readers to know that Viburnum fragrans fruited in my garden last year for the first time. This was one of the original plants raised by me from Farrer's seed. "E. H. M. C." omitted Viburnum bitchuense, which is in my opinion by far the best of all the viburnums. It is much after the style of V. Carlesii, but has much bigger flowers and grows into a larger bush. The flowers are white, but one of its attractions is that the buds are bright pink before they open.—F. C. STERN.

BLACK CURRANTS.

SIR,—I desire to thank "A. H." for calling attention to the Baldwin variety of black currant on page 222 of THE GARDEN. My experience coincides with his in certain respects and explains the reason why I did not recommend it. Late frosts mar the prospects of success in many seasons by destroying the essential organs of the flowers. Baldwin is the earliest black currant to bloom. If the contour of the plantation gives natural protection, much loss will be prevented. Every garden is not favourably placed in this respect, however, and the application of artificial protection would not be an economic proposition, I fear. I thoroughly agree with "A. H." that there are few fixed strains of Baldwin, and I congratulate him upon having worked up a reliable stock for which there is such a vigorous demand. It would be interesting to know if Baldwin is more liable to variation than other varieties. I know of none which gives such a large percentage of outsiders. One can scarcely think that the ordinary channels of commerce will ever absorb large quantities of Baldwin on account of the reddish colour of the berries when ripe. Colour does not count for much in the manufacture of preserve, but it does in shop and market trade. The public demand a black currant which is really black.—GEO. H. COPLEY.

RIBES LAURIFOLIUM.

SIR,—The flowering of Ribes laurifolium in the Royal Botanic Garden, Edinburgh, prompts the writing of this note. Although it cannot be reckoned a decorative plant, so far as its flowers are concerned, it is well worthy of cultivation, partly on account of the earliness of its flowering and partly for its foliage.

It received an award of merit from the Royal Horticultural Society, when the Hon. Vicary Gibbs exhibited it on February 20th, 1912. It had been raised at Aldenham, from seed sent home by E. H. Wilson, who collected it in western Szechuan, where the plant occurred among rocks at an altitude of 5,000ft. It is, in habit of growth, by nature dwarf and spreading, and is said to attain a height of about 6ft., so that it should be an excellent subject for the higher parts of the rock garden. The leaves are ovate-lanceolate, evergreen, and rather thick. They are of a fine dark green colour, and when full grown tinged with a pleasing purple shade at the margins, which are toothed.

The flowers are yellowish green in colour and carried in axillary racemes, which make their appearance in February or March. They possess rather large pale green bracts, which are quite distinctive.

The plant may be reckoned as hardy, although it appreciates a little shelter. It is recorded (Journal R.H.S., XXXVIII, page liv.) that plants growing at Aldenham in an exposed position suffered no damage, although on two occasions during the previous winter between 20° and 30° of frost were registered. It is planted in a sheltered part of the rock garden at Edinburgh, where it appears to do quite well.

There are good illustrations of the plant in the *Botanical Magazine*, t. 8543, and the *Gardeners' Chronicle*, III, 55, page 239. —R. H. JEFFERS.

NATIVE PLANTS.

SIR,—I was much interested in your leader on the above subject (page 167), and quite agree that many of the British alpine plants are difficult to cultivate. Gathering only a few specimens, or perhaps only one of a rare plant, I had little opportunity for making many experiments. There is more in it than the question of food, seeing that the plants were mostly grown in pots, and in all cases first established in pots. The saxifrages were as puzzling as any. From spring till the plants were put in a cold frame Saxifraga cernua, S. hypnoides, S. nivalis, S. aizoides and S. oppositifolia throve well; but after being put in the frame with top ventilation they began to damp off wholesale. S. cernua, found on one very restricted area of a mountain top, when kept in a cold frame during summer, developed a rosette of leaves from each bulbil, and by autumn had no reserves with which to continue growth the following year and promptly died. Other bulbils grown in a pot, fully exposed on the balustrade at the top of a three-storey house all winter, flowered beautifully the following summer. Climate and full exposure seemed to play its part here. Salix lanata in a pot in a cold frame got on well till the summer got really warm, when it died suddenly. The other species succeeded well in the open for a time, and S. Andersoniana and S. phylicifolia produced hybrids which sowed themselves spontaneously and flowered in two or three years' time. S. Myrsinites, S. Lapponum, S. reticulata, S. herbacea and a hybrid between the latter and S. Arbuscula all flowered. The first named made two or three distinct growths a year, but after a mild winter it came into growth in March and got all its leaves destroyed by a late frost, from which it never completely recovered. Tofieldia palustris throve well till one year when I re-potted it in rather heavy loam, when it gradually died. Draba rupestris in pots or pans made a showy plant, but in the open became seedy, weedy and sowed itself, but was uninteresting, owing to few flowers scattered on long stems.—J. F.

GORSE.

SIR,—The discussion of this subject by Dr. R. Lloyd Praeger (page 172) was very full and highly interesting, and if permitted I would like to add a few observations which I have made. The vindictive thorniness of the common gorse is an effective protection against all domesticated or farm animals, but in some rabbit warrens, where other vegetation is scarce, the gorse often fares badly, especially after it gets burnt by accident or otherwise cut down, for the rabbits then keep it very closely eaten down. I have seen one of the gorse mills mentioned by Dr. Praeger in a hilly part of Scotland. It consisted of a stone very like an upper millstone, with a hole in the centre. Attached to a long shaft, a horse travelled round a circular course in which the gorse was laid, so that the big stone crushed it, as the stone followed the horse at the other end of the shaft. It is indeed difficult to make gorse happy in a garden, because it loves the wind on the open sandy heath; but the double gorse grows compactly and flowers profusely on a sandy mound in Kew Gardens. Seedlings of the common gorse behave erratically in producing simple or compound leaves, as stated, but a good proportion of them have simple leaves, narrower than the seed leaves, and gradually becoming smaller till reduced to spine-like organs on stems only 2ins. to 3ins. high. The broom produces compound leaves from the first, rarely producing a large, simple leaf. I can see only one on fifteen seedlings.—HORTUS.

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COLLECTING PLANTS

IN this issue will be found the second portion of Mr. H. Stuart Thompson's article on plant holidays. There is nothing I can add to such an expert's advice except, perhaps, a few words on the actual collecting of plants and their identification. It is obvious from the increasing numbers of gardening enthusiasts who collect plants for their own gardens, whether at home or abroad, that everyone feels a satisfaction in growing plants which they have found for themselves and dug up with their own hands. There is something personal in the feeling that a collector has for a plant found by himself. He shows it off with pride and tends it with the greatest care, which is only natural, for there is nothing like a plant for recalling a happy day spent in the mountains.

In collecting plants three things are necessary in the field: something in which to carry them, something with which to dig them up, and a supply of labels. The main necessity in a receptacle is that it should be easy to carry; a fishing basket is excellent provided that it is curved so as to fit your shoulders, and the same thing applies to a collecting tin. Both of these are better than a bag or rucksack, for, being rigid, the plants can be packed tighter and are not so easily bruised or broken. A trowel is an absolute necessity if the roots are to be dug up without serious damage. Farrer invented a trowel which was by far the best for the work in the field. Instead of widening towards the handle, it was the same width throughout its length; the blade measured about 8ins. by 2ins. I believe that trowels after his pattern used to be sold by the Army and Navy Stores, but I do not know if they are still stocked. The labels should have a sufficient length of string attached to enable you to tie them firmly to a good-sized plant.

It may appear to be finicky to say that labels are a necessity, but this is really not the case. It is impossible even on a single day's excursion to remember exact details about each plant, and in order that it may have every chance in your garden, conditions should be approximated as nearly as possible. Every specimen should be clearly labelled with colour of flower, position, soil, water, sun or shade, orientation, altitude, if solitary or in clumps, and, if possible, what its near associates are. These are all important if its well-being in a home garden is to be catered for.

When you actually dig up a plant, make sure that you are taking sufficient roots and are disturbing them as little as possible. Thus, in an alpine meadow a wedge of turf should be dug up with the plant, a little moss with a plant from a rock, and so on. In most cases it will live quite happily with no attention for a fortnight or more, if it is collected in this way. When they are packed for transport home, they should be packed as tightly as possible.

Although thorough identification requires a botanical training, yet it is both instructive and amusing to try to name the plants you have collected. It is a mistake to imagine that a library is a necessity; for one thing, the more authorities you use the more muddled you will become. For British plants the beginner would do well to use "Haywards Botanists' Pocket Book" (Bell and Sons, 5s. net); while the gardener with some idea of families and genera will find Bentham and Hooker's "British Flora," 2 vols. (L. Reeve, 12s. net each), by far the most complete and useful. In the same way, in the Alps an invaluable book for the beginner who only wants to name his finds approximately is "The Alpine Flora for Tourists and Amateur Botanists," by Dr. Julius Hoffman, translated by E. S. Barton, with 283 coloured figures, new edition (Longman's, Green, 1925, 12s. 6d. net). The plates are particularly good, and for those to whom collecting is only a side line on a holiday, this small book is all that is necessary. Again, for those who are more advanced there are two splendid volumes by Mr. H. S. Thompson, the author of our articles, called "Alpine Plants of Europe" and "Sub-Alpine Plants of the Swiss Woods and Meadows" (the title of the latter, by the way, is a little misleading, for it covers a great part of Europe), numerous coloured plates (George Routledge and Sons, Limited, 10s. 6d. net each). Both of these volumes are exceedingly well planned and are very complete. All these books have glossaries attached which give simple definitions of botanical terms used in them.

This is not a large outfit to take away on a plant-collecting trip—a basket or tin, always useful for holding odds and ends, a trowel, labels and, at the most, two volumes.

One warning I should like to give to all would-be collectors: respect the plants and the ground in which you find them. Do not dig up more than you mean to carry away with you, and always smooth over the ground and replant any neighbours which you may disturb in removing something you fancy. Nature makes just as fine or better a garden than you can, though it may be untended.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

SOME ORNAMENTAL VINES, by A. J. Macself.

DECORATIVE GRASSES, by C. Leray.

NATURE'S ROCK GARDEN, by Halliwell Sutcliffe.

THE PALE PRIMROSE, by A. R. Horwood.

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CARNATIONS AND PINKS

DURING RECENT YEARS THE POPULARITY OF THESE CHARMING GARDEN SUBJECTS HAS INCREASED ENORMOUSLY, TO A GREAT EXTENT DUE TO THE LARGE NUMBER OF EXCELLENT NEW VARIETIES

IN common with all our popular flowers, both carnations and pinks have been greatly improved during recent years. The modern border carnation has not only a stronger and more upright stem, but there are fewer varieties inclined to split their calyces, and a wider range of colour has been obtained. Fragrance and hardiness have been preserved, and it can be truly said that, when well grown, there is no more delightful subject for the open border than the border carnation. It is far too often treated as though it were not a hardy plant. It will stand the rigours of winter in almost any part of our land, and if the plants are left undisturbed the wealth of bloom in the second season is a revelation.

The perpetual-flowering carnation is virtually a greenhouse subject, although it can be grown out of doors in the south with a certain amount of success. Its continuous blooming is one of its greatest assets, and on this point it scores over the border carnation.

The perpetual borders, or hybrid borders as they should be more correctly termed, bid fair to become popular. They have many desirable qualities, some of which are not yet recognised by many carnation lovers.

In pinks we have one or two new types that are already prime favourites. The well known Allwoodii has the habit of the pink, but a perpetual-flowering character which it inherits from one of its parents. Dianthi Herbertii have no carnation blood in them, but they have a very long blooming period, and the flowers are famous for their fine form and fragrance. The Pritchard pinks are another splendid new race, and they comprise many rich shades.

THE BORDER CARNATION.

It will be generally agreed that, taken as a whole, the border carnation represents the best formed flower. The petals are clearly cut at the edges, and in the best types they are of splendid texture. In the best varieties, too, they are not too numerous or closely packed, so that the flower has a good chance of opening without "balling" or splitting the calyx. The evolution of a strain that has been well named "Cloves" has been instrumental in combining fragrance with the best attributes of the border varieties. I am not quite sure whether our hybridists, in trying to produce new shades, are not rather overdoing the fancy section and giving us many mixtures of colours that may be unique but are not altogether pleasing. That is, however, perhaps a matter of individual taste.

THE HYBRID BORDERS.

These are only new in so far as they have been in commerce but a few years. They have been in existence for a quarter of a century. Messrs. Allwood Brothers of Haywards Heath were the first to introduce them to the gardening public, and with one exception all the varieties that they list, I believe, are of their own raising. The exception is the variety Avondale, which was raised by the late Major Paterson, and named after his residence, some fifteen years ago. Messrs. Allwood Brothers have, doubtless, improved the original stock since it first came into their hands, and it is now listed as Sussex Avondale. I have grown practically all the Sussex varieties together with a large number of seedlings from other sources, and from my experience of them, both in the open and under glass, I am convinced that they are a coming race. Messrs. Allwood's varieties are a particularly good and useful strain. Many of them represent an excellently formed flower, *e.g.*, Sussex Pink (possibly the nearest approach to the form of a border variety of any that are at present in commerce), Sussex Supreme, Sussex Idol, Highland Lassie, Rosalind, Sussex Crimson and Sussex Scarlet. The newer introductions are particularly strong in the stem, and some of them, such as Sussex Leander and Sussex Cerise, are very floriferous.

In the seedlings that I have tried during the last two years there has been rapid evolution as regards the attainment of dwarf, bushy habit, regularity of form and smoothness of petal, the retention of fragrance and the production of many pleasing self colours. Several whites and salmon pinks appeared in the last batch, and there is already a big range of scarlet and cerise shades, together with many beautiful fancies both on white and yellow grounds. A yellow variety has also been produced.

The hybrids can be lifted from the open border in the same way as chrysanthemums, and when treated in this way they will give a succession of bloom if kept free from frost.

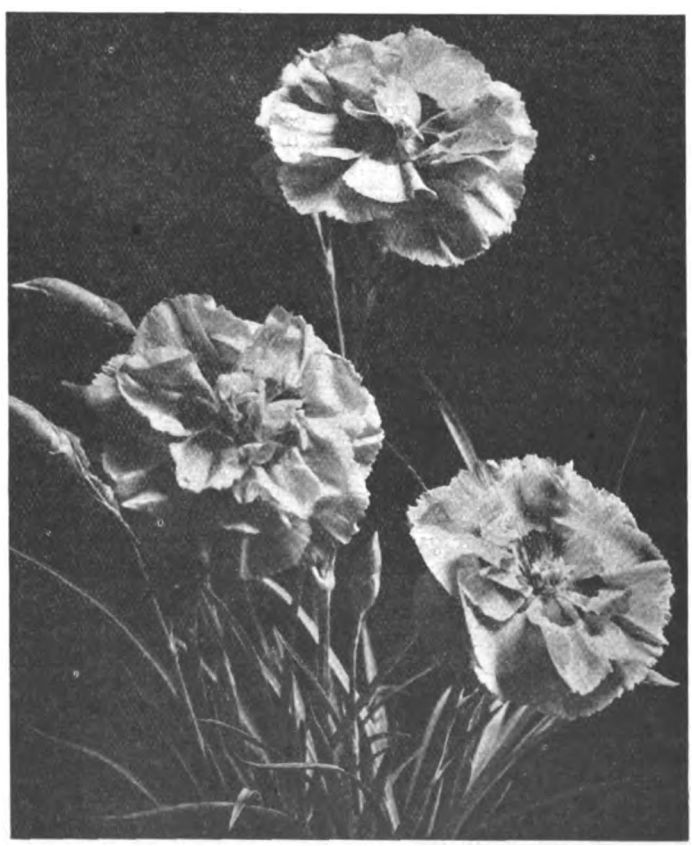
DIANTHUS ALLWOODII.

These are very easily grown subjects, and will thrive in any soil if they are given a sunny situation. They soon make big plants and, as they strike readily from cuttings, a big stock can easily be obtained from an initial outlay of a few plants. During the summer they can be propagated without the aid of glass if they are inserted in a sandy soil and given a shady place until root action commences.

There are now many pleasant self colours, and those varieties that have a distinct central zone or "eye" are very pretty. In the self shades Harold is a very popular white, Marion is a lovely shade of pink resembling the Rose Dorothy Perkins, Hugh is a distinct crimson-purple, and Maud, Nell and Vera are different shades of pink. The latter is a good variety for rockwork. In the varieties that have a central colour zone Susan, Betty, Eleanor and Joan are all excellent.

DIANTHUS HERBERTII.

I believe that there is a great future in store for Mr. Herbert's pinks. Since the original variety, Progress, appeared as the result of crossing two of the laced pinks, many beautiful shades have been produced. Of the moderately priced varieties I can particularly recommend Queen Mary (rosy pink with deep crimson base), Model (rosy pink with deep red base), Mrs. G. Walker (bright pink and rosy red), Victory (deep ruby crimson), The Imp (dark crimson),



PERPETUAL FLOWERING PINK (HERBERTII) QUEEN MARY WITH ROSY PINK BLOOMS.

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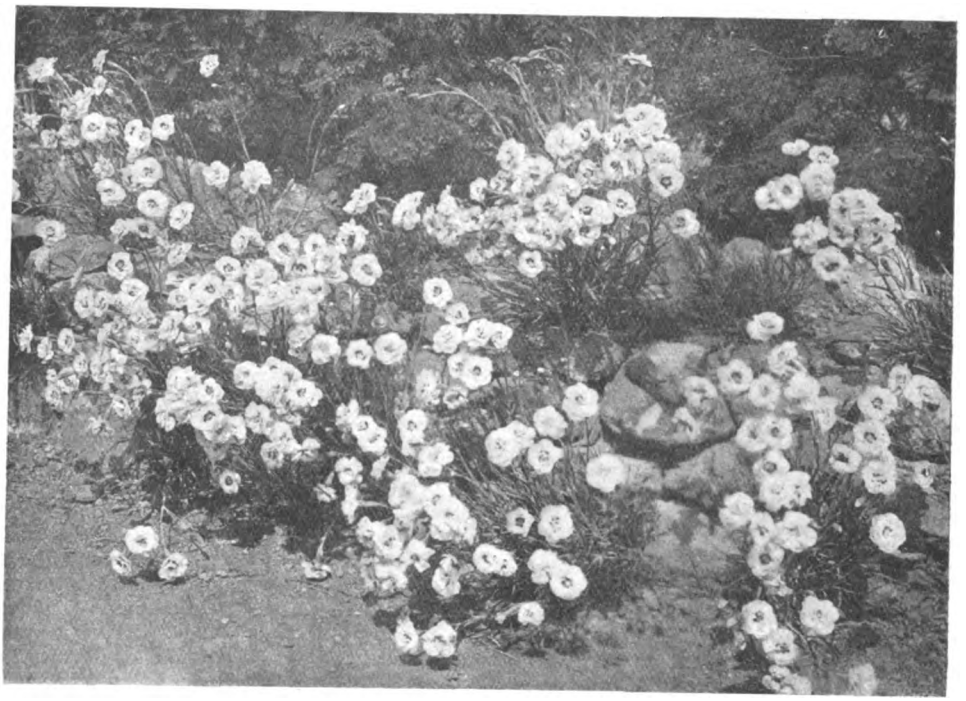
May Queen (bright pink), Lyric (purple) and Gertrude (rosy mauve).

Mr. Herbert tells me that he now has scarlets, white, pink, crimsons in various shades, purple, buff and colours hitherto not seen in any carnation or pink. There are several salmon and intermediate shades, but no yellow as yet. It is certain that during the next few years we shall see great developments in this magnificent strain.

A FEW WORDS ABOUT CULTURE.

Mr. Montagu Allwood is of the opinion that the majority of carnation growers do not realise the fact that carnations love lime and abhor leaf-mould. Those who have admired the wonderful displays from the Wivelsfield nurseries may find much benefit if they will remember his advice. I believe that many growers are often inclined to think that the carnation will thrive if planted indiscriminately in a mixed herbaceous border and left to take its chance. It is probable that tall-growing subjects choke out the light that is essential to its well-being. Give it a sunny situation, sheltered from the winds if you can, but never overhung by trees or shrubs. If the soil has been well prepared to the depth of 1½ft. or 2ft. and a liberal dressing of well rotted animal manure incorporated in the lower spit, providing the soil is rich in lime, that seems all that is necessary to give the plants a good start. Plants may be obtained from the best houses ex pots, so that it is not yet too late to put out a final batch.



CLUMPS OF DIANTHUS ALLWOODII ARE ALWAYS EFFECTIVE IN THE ROCK GARDEN.

My article on "Border Carnations for Autumn Planting" in the issues for November 1st and 8th, 1924, raised a number of points with which I will deal briefly now.

With reference to the variety Gracefulness, one of Mr. Payne's novelties, I wrote, "this is a fine variety for growing under glass, when with the calyx eased and helped occasionally, it can be grown to a very large size," and a correspondent, "Linkman," asks for a more explicit explanation of this. When very large buds are observed these should be slit about one-third of the way down each rib on the calyx. This is known as easing the calyx and helps the bloom to open evenly. Varieties that have a tendency to burst their calyces, *e.g.*, Lord Steyne, Princess Mary, Bookham Flame, etc., give excellent blooms if treated in the way described. I do not think any useful purpose will be served by entering into a controversy about Mr. Morton's criticism of my last article. He merely gives his experiences of certain varieties in contrast to mine. In support of my statement that Bookham Salmon has a strong constitution, Mr. James Douglas, the raiser, states that it is the strongest in the section, the next being Salmon Clove and the next Laverock. Mr. Douglas tells me that since its introduction some 17,000 plants have been grown and distributed, and no complaint of any kind has been made about it.

The form of Margaret Keep may not be perfect as an exhibitor's flower, but it is a neat, compact bloom for the border. That is the place where the *border* carnation should be grown. If grown under glass, where red spider is often a terrible pest and impregnable when once it obtains a footing, an erroneous idea of the merits of a variety is formed. My experiences of border carnations are confined to outdoor-grown plants.

NORMAN LAMBERT.

SEASONABLE WORK AMONG HARDY SHRUBS

THE number and variety of hardy shrubs cultivated in our pleasure grounds and garden borders have vastly increased during the last two or three decades. With the increased interest in this branch of gardening has followed much improved methods of cultivation. Growers of fruit pay special attention to the preparation of the ground, transplanting, mulching and pruning. These operations are equally important for the successful cultivation of shrubs.

In spring, when the roots are in full activity, many shrubs, one might even write all shrubs, benefit by some form of mulching or top-dressing. The mulch may be applied for one of two reasons, or both, *i.e.*, nourishment for the shrubs or to assist in keeping the soil cool and moist during the hot dry days of summer. Decayed farmyard manure is the best mulching to supply most plants with nutriment. If of a heavy nature, it can be mixed advantageously with half-decayed leaf-mould. The mulch for rhododendrons, including azaleas, should be more vegetable than animal litter. For this family of plants spent hot-bed or mushroom-bed manure is useful mixed with leaf-mould.

The question of covering or burying mulchings of manure near the house and in frequented parts of the pleasure grounds and garden may arise. In the case of newly planted shrubs it is generally a simple matter to fork in the dung lightly. With established bushes, however, having many surface roots, it is a mistake to fork the surface indiscriminately. When it is desirable to cover the manure, sprinkle a little fine soil over the top rather than dig it in and destroy endless numbers of fibrous roots in doing so.

THE SPRING PLANTING

of numerous shrubs in a small state is desirable for various reasons. The cistuses, for example, suffer more from cold winds and sudden changes of wet and cold than actual dry frosts. Consequently the plants in pots are afforded the protection of a cold frame or sheltered positions until April is well advanced.

The ceanothuses, both spring-flowering and the summer and autumn blooming hybrids, are mostly found to thrive best when planted during the late spring. Eucalyptus, Hibiscus syriacus and hamamelis will take root in fresh soil, if planted at the end of April onwards into May.

To obtain the full benefit of the beautiful coloured stems, the pruning of the willows, Salix vitellina, the variety britzensis and S. daphnoides can be deferred until towards the end of April.

PRUNING EVERGREENS.

During the second half of April on into May, when shrubs are getting into full activity of growth, is a good time to prune

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evergreen shrubs. The trimming and shortening of thin branches and twigs may continue, as occasion arises, throughout the summer. When the proposed pruning is to be fairly hard cutting back into the old wood, this is the season of the year to do the work with the most hope of success.

In no other garden operation is the old proverb "A stitch in time saves nine" more applicable than that of pruning, and to the pruning of evergreen bushes in particular. It is often a mistake to pass a bush because it looks satisfactory for the time being. Consider rather the subsequent growth for the next few years. Several inches taken off the ends of the shoots now to induce bushy growth and the laying of a good foundation will, or may, obviate the necessity to cut off as many feet in four or five years' time. This latter will, probably, also mean disfigurement for at least a year.

This is the best season to take in hand neglected holly, yew and other evergreen hedges. It may be desirable to spread the treatment of hedges in very bad condition over a period of two or three years. If the height is to be considerably reduced, do this now, next year cut one side hard back, and the following year deal with the remaining side. Couple with the pruning the cultivation of the surface soil and the application of a good mulch of old decayed manure. Spray severely-pruned hedges morning and evening for a few weeks during hot, sunny weather. In addition water liberally if the soil is dry. Somewhat similar treatment should be afforded to certain evergreens which have outgrown their positions. In the case of flowering shrubs it may mean the loss of a season's blossoms, but if the bushes are to be kept within limits this is inevitable. It will be sufficient to cite three well known examples, *i.e.*, large-leaved rhododendrons, Olearia Haastii and Veronica Traversii.

Certain evergreens planted as hedges require attention in the matter of pruning each year after flowering, notably the laurustinus, Berberis Darwinii and B. stenophylla.

A few early-blooming deciduous shrubs, especially when grown against a wall or fence for protection, benefit by the shortening and thinning of the shoots. These include Chimonanthus fragrans, Loniceras fragrantissima and Standishii, varieties of Cydonia japonica, Jasminum nudiflorum, forsythias, Prunus triloba flore pleno and P. japonica, both double white and pink forms.

One section of forsythias, Fortunei and Sieboldii forms of suspensa, flower better when the young growths are pruned fairly hard back each spring after flowering. The other, represented by F. viridissima and the hybrids F. intermedia vars. spectabilis, densiflora and vitellina, should only have the stronger young shoots shortened.

TRANSPLANTING EVERGREENS.

Because the leaves of evergreen shrubs must have an uninterrupted supply of moisture from the roots throughout the year, though appreciably less in winter, a large number are not so readily transplanted as the deciduous or leaf-losing shrubs.

The best time to lift and transplant these evergreens is when life is very active and the roots can speedily establish themselves in the new positions. Generally this is towards the end of April and during the first half of May, but it varies a little from year to year according to the weather. Obviously, a showery period is ideal for the work, while the moving operations should if possible be suspended during hot, dry and windy weather.

Warm, showery days in May are favourable for the planting of hollies, yews and other evergreens from nurseries. Most growers of these plants for sale pay special attention to frequent transplanting in the home nursery to fit them the better for the journey and safe planting in the purchaser's garden. When there is any appreciable loss of roots, considerable shortening of the leafy twigs is desirable to balance matters somewhat, until the root system again becomes normal.

Evergreen oaks, arbutuses, cistuses, pyracanthas, evergreen ceanothuses and ivies are usually cultivated in pots in nurseries to overcome the difficulties of transplanting. From time to time, however, as these and similar shrubs increase in size thinning must be done, moving to fresh positions being necessary. Though the shrubs may be moved with good balls of soil attached to the roots, make a point of reducing the top growth to balance somewhat the inevitable disturbance of the roots.

The fact of growth starting with renewed energy means active leaf transpiration, hence the sooner the roots get a fresh grip of the soil the better. As soon as convenient after planting a thorough soaking with water is essential with all evergreens. It will help in keeping the ground moist to mulch freely with decayed manure. Further waterings must follow if the weather is dry, and syringe the plants mornings and evenings on hot, sunny days.

Our experience in planting a holly hedge with bushes 5ft. in height may be helpful to some readers. We had a trench dug ready for them on arrival from the nursery. Unfortunately, though it was the middle of May, a hot, dry spell set in. As each plant was placed in position the soil was watered in, the tops sprayed and covered with tiffany. The first week this was left on and drenched with water several times daily. The next week the tiffany was removed at night, but put on during the day except on one occasion, when it rained most of the day. The tiffany was dispensed with at the end of the month, but spraying and watering when necessary was continued throughout June. Though not a drop of rain fell during the first ten days after planting, and there were drying winds, only two plants were lost out of fifty planted.

BAMBOOS.

May is the best month for the propagation by division and the transplanting of bamboos. At this time new growth is beginning—the obvious sign of active root action. An old well worn spade with a sharp edge is a useful tool to chop off pieces from the sides of healthy clumps. Sometimes if the root-stock is very woody when a large piece is lifted a mattock may be required to aid in the division. Small pieces with few roots are better potted up and placed in a warm, moist greenhouse for a few weeks.

A moderately moist loamy soil is on the whole best for bamboos. In selecting sites for planting, choose positions sheltered from the north and east. In wind-swept areas bamboos are an eyesore rather than objects of beauty for a good part of the year.

Six of the best hardy bamboos are Arundinarias fastuosa, nitida and japonica, Phyllostachys nigra, viridi-glaucescens and Henonis.

MAGNOLIAS.

Having thick and somewhat fleshy roots, great care is necessary in the planting and transplanting of magnolias. September and May are the best months for moving. It does not matter if the bushes are in flower at the present time, root growth is active and damage or loss of roots should be soon made good. Magnolias thrive best in a warm, deep, well drained loamy soil, mixing in plenty of leaf-mould and peat when planting.

A. OSBORN.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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SOME NATIVE GEMS FOR THE ROCK GARDEN

WHILE we have to go abroad for the majority of our alpine treasures, our native islands still give us some plants which are comparable to any collected on Dolomitic or Pyrenean heights, and most of them can be readily naturalised in our gardens.

Arenaria gothica, although probably originally introduced into this country from Norway, has lived with us long enough to be included in our flora. In several northern localities this little rarity is found in thriving colonies, forming tiny hummocks of sharp-pointed green leaves. The flowers are produced fairly freely in June and July, being white and star-shaped on short stems. It is not at all easy to cultivate, so far I have succeeded best with it under pure scree treatment, but having heard that it grows with extra vigour on waste heaps from deserted lead mines, I am now trying it with lead cut up and mixed in the soil, but cannot yet say whether this somewhat drastic treatment will be successful.

Another choice arenaria, a native of Yorkshire, is A. verna, which is admirable for planting in combination with that other well known native, Gentiana verna, its rather dull green tuffets of growth forming a splendid foil for the vivid blue of the gentian, and the dainty white flowers on fairy-like stems are exceedingly pretty in themselves.

Then there are all the tiny forms of the willow, every one worthy of a place in any rock garden or even alpine house. I need not describe them all, but let it suffice to say that Salix repens, S. Lapponum, S. Myrsinites, S. herbacea and S. reticulata are the best of them, and all creep and cling to the rock in a most charming manner.

Gentiana verna is almost too well known to need description, but no one sees its starry flowers of intense blue without wishing to grow and cherish it in his own garden. It thrives very happily indeed when grown in a mixture of one-third each limestone chippings, leafmould and sand. As a substitute for the leafmould, coconut fibre can be used with perfect success.

A really charming little plant is the Bird's Eye primrose (Primula farinosa), which grows by the million in the Yorkshire dales. In the spring when the ground is covered with a sheet of the small lilac flowers with golden eyes, on 3in. stems, it is a sight well worth seeing, and can, on a smaller scale, be easily reproduced at home, for it transplants with perfect composure into a cool, moist spot in the garden.

A much rarer primula is P. scotica, found only in this country along the sea coast in parts of Scotland. It is like a much fatter and smaller edition of P. farinosa, with mealier stems, and considerably darker flowers. It grows only about 2ins. high and is rather apt to flower itself to death, but can be raised readily from seed.

A real little miff, which is exceedingly difficult to cultivate at all, is Azalea procumbens. It is a minute azalea, only 2ins. high, and becomes a sheet of pink in the summer, when the flowers appear, but it only does this in the native state, for it seems to resent bitterly any interference with its woody rootstock, and unless small seedlings can be procured, it is hopeless to try to establish it, and even if established it seldom flowers in gardens.

THE GRACEFUL PASQUE FLOWER, ANEMONE PULSATILLA.

A native which is very rare indeed is Sagina Boydii. It is a plant which, while not strikingly beautiful, still attracts one by its neat and tidy habit. Its flowers, which possess no petals at all, are quite inconspicuous and they are not missed when one sees the tight growing tussocks of glossy green leaves. The plant is quite easy to grow under scree treatment—when it can be got at all, for it is very seldom offered. I have a few small plants which are doing very well, but it is very slow to increase.

One of the most beautiful of all our plants is the pasque flower or Anemone Pulsatilla, which grows profusely on a few isolated hillocks in Hertfordshire. It is entirely distinct from the large Continental form so often seen in our gardens, which forms clumps a foot or more in height with huge downy flower heads; this native form rarely exceeds 4ins. or 5ins. The flowers are of the most intense deep purple, in shape like a very wide open crocus flower.

The local name for the plant is Danesblood, as it is only supposed to grow where Danish blood has been spilt. It was a sight I shall never forget when I first came upon a lonely hillside glowing with wide purple stars; seed germinates freely and it does well in cultivation.

Cornish moneywort or Sibthorpia europæa is a nice little thing for a shady corner among ferns; it is more interesting than beautiful, but well worthy of a place in the garden. Another plant for cool shade is Wahlenbergia hederacea; this is really pretty and has a fairly wide

LYCHNIS ALPINA, OF NEAT AND COMPACT HABIT.

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distribution in semi-boggy positions. I have found it on the Sussex Downs growing among Drosera rotundifolia, our native flytrap. Flowering in early summer it produces pale blue star-shaped fairy bells, studded along a thin trailing growth of ivy-shaped leaves; the plant has a delicate beauty all its own. A pretty biennial from Westmorland is Lychnis alpina. Unfortunately the flowers are of an undoubted shade of magenta, so the plant has to be placed with care. It forms bushlets of dark green leaves covered in their season with the rosy lilac flowers; it can readily be raised from seed and is one of the easiest plants to grow.

Although the foregoing are all I have time to enumerate at present, there are many more native plants that I hope to mention in future notes.

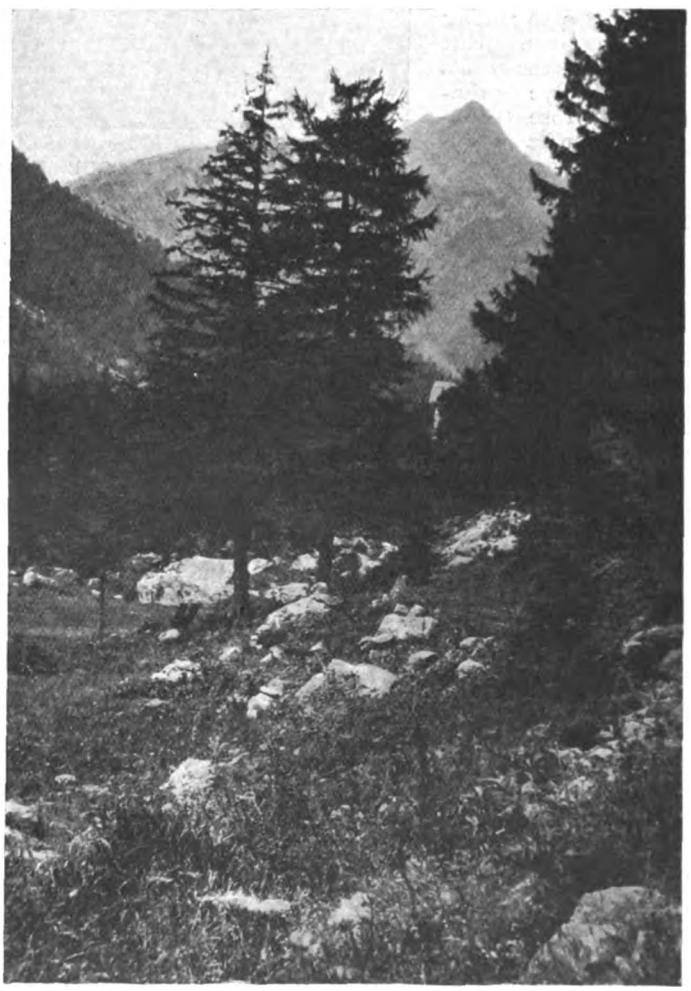
W. INGWERSEN, JUNR.

PLANT HOLIDAYS—II

BY H. STUART THOMPSON.

FROM S. Dalmazzo the long walk up the Val Miniera to the west is the most attractive to the alpine plant hunter. The Musk orchis and Listera cordata grow in mossy banks near the entrance to the valley. Aquilegia Reuteri, Geranium macrorrhizum, Digitalis media and Lamium longiflorum could not be missed, so attractive are their flowers. The rare Phyteuma Balbisii takes more finding, and happily is difficult to eradicate. Above the fork in the valley where the mines are, the north branch is known as Val Casterino. Still higher many ordinary alpine plants luxuriate, and the blossoms of Nigritella are almost invariably of a beautiful rose colour. Of primulas there are marginata, latifolia, intricata and suaveolens (the southern form of cowslip); and Orchis speciosa and sambucina, both yellow and purple, are abundant. Fortunate were the guests who ever had the privilege of staying in the summer house of the late Clarence Bicknell, which he built high up in Val Casterino. In some of the wildest regions above the valley are enormous areas of ancient rock drawings and inscriptions, which have been much written about by Bicknell and other antiquaries.

The wealth of flowers on some of those alpine slopes is beyond description. Here the ground is white with Ranunculus pyrenæus, numbers of the flowers being more or less double. There, interspersed with blue and white crocuses, are masses of handsome dwarf tulips (T. australis var. alpestris), whose yellow segments are deeply tinged with red. Only less abundant than the tulips are the spotted purple-brown bells of Fritillaria Burnati, while on an adjoining slope are thousands of the large nodding blossoms of the yellow F. Moggridgei, with here and there the purple species growing with it. To get to these higher slopes, collect plants and return to S. Dalmazzo in one day would be almost impossible. Night accommodation of some sort high up in the valley would be necessary. There is probably still nothing but a rough mule path up the Val Casterino. In other directions about Tenda such good saxifrages as S. pedemontana, S. retusa, S. diapensoides, S. florulenta, S. cochlearis, S. lingulata and S. lantoscana, can I hope still be found in greater or less profusion.



THE HOME OF MANY PLANTS TO BE FOUND IN OUR ROCK GARDENS.

The little town of Tenda, with its crumbling castle is romantically situated two and a half miles above San Dalmazzo, but it is not so convenient a place at which to stay. If the region is visited from the Mediterranean it can be reached either from Nice or Ventimiglia, whence the drive up the long Roya valley is shorter, and the main Tenda road is joined at Breil. This drive is full of interest. Of course any of these southern hill resorts might be combined with a visit to the famous Hanbury Gardens at Mortola.

It would be easy to take the Tenda district before a visit, *via* Turin and Susa, to Mont Cenis, one of the richest areas for alpine plants. But so much has been written since 1908 about Mont Cenis and its flora, that I propose to say nothing here, except that the hotel accommodation is none too good, and since the advent of motor cars it is frequently noisy, especially on Sundays.

The Col du Galibier, leading from S. Michel de Maurienne in the Arc valley and the railway near Modane to the mountains of Dauphiné and Lautaret, has a very large number of high alpines, and the district might advantageously follow a visit to Mont Cenis. But though the Lautaret pastures are renowned for the beauty and luxuriance of their flowers, and notwithstanding a nice alpine garden, the big hotel is, in the season, the rendezvous of a fashionable cosmopolitan crowd, so that I am not alone in having found quieter and less expensive quarters at one of the two hotels at La Grave, 5,000ft., a few miles down the road which leads to Grenoble. La Grave is quite a good place at which to spend a week or more, and the views thence of the Meije are very striking. Moreover, if good walkers want to do one of the easiest glacier ascents of 11,600ft. in the Alps, they can get a guide to take them up to the Col de la Lauze. The lower slopes are full of interest to the botanist. So are those of the Aiguille de Goléon. La Bérarde, with good hotel, is another desirable centre in the Dauphiny mountains.

Therefore, if opportunity occurs, it is certainly worth while to leave the train at St. Michel and walk *via* Valloire over the Col du Galibier, which after the Stelvio has the highest carriage road in Europe. When I took that walk in 1907 it struck me that the large and well built village of Valloire might afford an attractive place at which to stay, and it is the prosperous looking centre of an interesting district.

Val d'Isère (6,000ft.) north of the Col d'Iseran and accessible from Mont Cenis, Lanslebourg or Modane railway station, is a delightfully situated little village, with two comfortable

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hotels, which I often wish circumstances had allowed me to stay at for more than one night. Alpine guides are procurable there, if wanted, for any of the longer expeditions.

Cogne, 5,oooft., in the Graian Alps, is a particularly delightful place both for flowers and big mountain expeditions. It has had its praises blown as a climbing centre and as a paradise of flowers by Mr. George Yeld, Editor of *The Alpine Journal*, and the whole district is authentically described in his "Scrambles in the Eastern Graians, 1878-1897." The valley of Cogne is easily approached by carriage road either from Aosta or Courmayeur, and a visit to the latter resort might well be done on the same tour.

Space precludes more than mere mention of a few of the best centres for alpine plants in Switzerland. Moreover, they are known to so many. In central Switzerland perhaps Engelberg is one of the richest and most frequently visited. The limestone sub-alpine woods are remarkable for the large number of orchises, including Cypripedium Calceolus; but it behoves collectors to remember the increasing rarity of this European orchid. One of the best walks from Engelberg is up to the Trübsee and over the Joch Pass.

The Valais is the Swiss Canton with the richest flora, of at least 1,785 vascular plants, though the Canton du Vaud (with Ormont-dessus as a good centre) comes a good second, and Berne has about a hundred fewer species according to Jaccard. In the Valais all the valleys south of the Rhone are good, and the nearer one gets to the Italian frontier the richer the flora. I have walked up or down every one of these lateral valleys, from Binnenthal in the east to Val d'Illiez in the west, and each possesses some special feature. But perhaps the best from our point of view are Binn, Saas, Zermatt Valley, Val d'Anniviers (Zinal, 5,5ooft.), Val de Bagnes (Fionnay is a good centre), and Val d'Entremont, where the place to stay is Bourg St. Pierre on the road to the great St. Bernard and Aosta and close to the charming Jardin de la Linnæa.

The Valley of Chamonix in Haute Savoie is comparatively disappointing botanically, and in these days Chamonix in July or August is a place to avoid. There are plenty of hotels at or above Argentière or on the Swiss frontier, which can be visited in comfort, and whence Mont Blanc and her satellites can be viewed in peace. But the Italian sides of Mont Blanc are more floristic and far less frequented, because much less accessible. Courmayeur (Hôtel du Mont Blanc) is a delightful centre at just 4,oooft. So is the higher station of Breuil above Val Tournanche on the Italian side of the Matterhorn and Théodule Pass. The village of Valtournanche (5,oooft.), has several small hotels and ample first-rate guides; but I strongly recommend the higher solitary Hôtel du Mont Cervin at nearly 7,oooft. It is a large and excellent Italian hostelry, and in the midst of an immense wealth of alpine flowers.

ST. MAURICE, A GATEWAY TO SEVERAL OF THE LATERAL VALLEYS OF CANTON VALAIS IN SWITZERLAND.

In Canton Tessin, Piora above Airolo has of recent years become a favourite resort for lovers of the picturesque and of flowers. It was one of Canon Ellacombe's delights to go there late in life. But there are so many good centres, and already in this sketch we have exceeded our allotted space, and cannot refer to the Engadine or any district farther east.

Ball's "Alpine Guide," both old and new editions, gives numerous short lists of interesting plants for many localities. This is much the best guide to the Alps in any language, and no one in these Islands at least knew the Alps and their flora so well as John Ball. Longer lists of plants under the various districts can be found in Vol. VII of Gaudin's "Flora Helvetica," 1833. In fact the whole of that volume of 660 pages is devoted to such lists, and the places are arranged in alphabetical order.

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AN EIGHTEENTH CENTURY NURSERYMAN

AT the beginning of the eighteenth century the East End of London was still an important centre for nursery gardening, although the smoke from the "sea-coal" was already beginning to intefere with the business. At Hoxton there were three large nurseries and a wine-producing vineyard that was probably the last of its kind in England. One of the nurseries was owned by John Cowell, who attracted a good deal of attention in 1729 by flowering the American aloe (Agave americana) and the torch-thistle (Cereus grandiflorus). In the same year he broadcast his success in a small booklet describing the two plants and also the Glastonbury thorn, another of his specialities. This booklet he re-issued, with much additional matter, in 1730, under the title of "The Curious and Profitable Gardiner," and a second edition of it was published in 1732 with the title changed to "The Curious Fruit and Flower Gardiner," by Richard Chandler "at the Flower-de-Luce without Temple Bar."

This last book gives an interesting picture of a phase of English gardening that is a little overshadowed for us now by the activities of the great landscape gardeners who had things so nearly their own way during the eighteenth century. The stovehouse had just been invented, after some preliminary experiments with heated walls and orange houses warmed with open fires, and now, for the first time the cultivation of tropical plants was a practical possibility.

The new fruits that were being introduced from the Colonies by the wealthy "Nabobs" interested Cowell even more than the flowers, and he gives an enthusiastic account of "The Bonana or Plaintain of Surinam; with others the most extraordinary and Admirable Fruits." The others were the pineapple, guava, mango, papaw and shaddock; and it comes with a little shock of surprise to find that these, still rare, exotic plants were grown for the sake of their fruit by private individuals at the beginning of the eighteenth century.

After describing the new fruits and their culture, the author gives a chapter to a method of naming varieties of garden plants that was in use among "the very curious Flowerists abroad." The initial letter of the name indicated the colour of the flowers; if it had two colours a double name was given and the predominating colour shown by the initial of the first word. So that a white flower marked with crimson might be called "William the Conqueror" or the "Wonder of Constantinople."

The next chapter deals with the management of the tulip. a flower that was still very popular, although the full force of the tulip mania was already past. Directions are given for inducing the flowers to break, but the author does not recommend them very strongly, seeming to incline to the view of "the learned philosophers" that variegation "proceeded from some weakness or distemper," while the methods quoted seem designed to stimulate, and the impatient are told to: "Take the Plaister of old Walls, . . . powder it fine and mix it with drift Sand, or such Sand as is sharp, and found on the Sea-shore: to this add of the Water that runs from a Dung-hill or Jakes, that one may have an equal quantity of each, . . . and put it over the surface of your bed a little before you plant your breeding or plain Tulips, and 'twill make them break into fine Stripes to a Wonder, as is related to me by a Gentleman of Great Honour, who has proved it, as he observed, for five or six Years." Another method, "less noisome than the first," dictated a top-dressing of slaked lime and pigeons' dung in equal parts, and it seems to have been generally believed that lime favoured "breaking," for the soil in the famous garden near Brussels where tulips broke so freely was said to consist chiefly of mortar rubble.

There follows a short memorandum on growing roses. There were not yet many kinds in cultivation, for the great influx of new varieties from the Continent and the East was to come some sixty years later. Bradley, writing in 1719, says that sixteen varieties were grown by "that curious and incomparable Patroness of Botany," the Duchess of Beaufort, in her garden at Badminton, and he seems to consider it a large number, though Parkinson, perhaps making finer distinctions, had enumerated about thirty. Cowell, excluding all single and semi-double roses except the Austrian briar, gives the following fourteen as the chief sorts: the damask, the Provence ("the red and the common Sort"), the two sorts of striped roses, York and Lancaster, and Rosamundi; the white rose, the velvet rose, the carnation rose, the musk rose, the Holland's or the Belgick rose, the monthly rose, the Austrian and the double yellow.

Of this last we are told that it is "hard to blow; and some curious Gentlemen have attempted it without success by nailing it against a wall." This is the old sulphur cabbage rose (R. hemisphærica) that was introduced from Constantinople by Celsius; but even the most curious gentlemen seem to have given up the attempt to grow it in our climate. The "Monthly Rose" was probably a damask, for the China rose, that was to give rise to the monthly roses that we now know, had not yet been introduced. Rosamundi (now also known as Cottage Maid) and York and Lancaster are still grown, though one sometimes passes for the other, yet they are distinctly different as they are figured in Miss Lawrence's book of roses (1799), where Rosamundi is shown boldly striped, about equally deep pink and white, while York and Lancaster has some petals pure white and others finely pencilled with carmine; the pink and white petals are usually grouped together on either side of the flower, so that the general effect suggests the unfinished work of the gardeners in "Alice in Wonderland." The "Velvet Rose" was apparently a dark red Provence, the "Belgick Rose" a red damask, and the "Carnation Rose" (Rosa incarnata) a small pink.

The book ends with a description of the Glastonbury Thorn and a long account of its introduction by Joseph of Arimathea, whose staff blossomed miraculously one Christmas Day as he was preaching to the unconverted on the Isle of Avalon. The parent plant from which Cowell derived his stock was still alive at this time at Glastonbury, and was an object of pilgrimage at Christmastide, when, he says, it never failed to flower. It is still seen in a few gardens, where it is valued for its habit of flowering at intervals through the winter as well as in May, though there seems to be nothing to support its claim to an Eastern origin and the botanists find that, except for its double flowering season, it is identical with the common hawthorn.

Cowell's career seems to have ended with the flowering of the aloe, for he is referred to in 1730 as "late of Hoxton," and, although it is not clear whether he had died or only left the neighbourhood, that is the last we hear of this "excellent Florist and polite Gentleman, famous for Gardening." F. A. H.

NOTES FROM NEW JERSEY

I CAN substantiate what Charles Leray says (December 6th, 1924, issue, page 821) of the double Hydrangea Domotoi. It has been listed by Henry A. Dreer for two or three years, but so far has not been taken up to any extent by the florists. When visiting the New Jersey State Experimental Station two years ago to see the results of the colour control experiments on hydrangeas, H. Domotoi was colouring up nicely and was decidedly double. I have seen no large specimens of this variety, however. Incidentally, while hydrangeas, including some of the new hybrids, are largely grown by the florists for early spring trade, no one appears to produce the giant heads on small plants that are the rule in the London market. Here, the plants are grown with several heads, often overpotted and not notably good, except the larger specimens, 18ins. and over across, these carrying six or more trusses. Trophee is fast becoming the popular dark pink, but ordinarily most growers have a greater percentage of blues than pinks. Trophee shows less tendency to come blue than the older sorts. Since the New Jersey experiments proved that it is possible to control the colour, however, growers are likely to produce a greater percentage of pink shades. It is all a a question of soil alkalinity and acidity; the latter means blue graduating down to pastel mauves. When pink shades are wanted lime brings about the desired results. An overdose of lime, however causes chlorosis. Up to the present,

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Chas. H. Connors, who carried out the experiments, has not issued a complete report, but when lecturing before the New York Florists' Club last year he provided sufficient data to enable growers to achieve what they desired.

The reference in the same issue to the Chinquapin, the native dwarf chestnut, prompts me to mention that the late De Van Flut made a number of crosses with the chinquapin and other species of chestnuts with a view to developing a chestnut that is proof against the blight. Throughout the northern section of the United States the large or true American chestnut, C. dentata, has been practically wiped out by a mysterious disease supposedly introduced from the Orient in 1904. No cure or preventive of this disease has ever been found, and only in rare instances, I believe, can specimens be found in this section. The Department of Agriculture, I believe, has a number of chinquapin hybrids, mostly crossed with the Japanese chestnut.

With reference to the question of circumventing moles, I am fain to admit that the English mole is more easy to trap than his American cousin. The American mole does not throw heaps periodically, as does the English mole; he runs just under the surface when hunting, heaving all the time, so that it is not just a matter of burrowing beneath one's onion, sweet peas or grass patch, but the actual lifting of the surface throughout the course of operations. At no time is the lift more than 1in. or 2ins., but on one trip a mole can cover many yards. It is practically useless to set traps on newly made runs, as only rarely does the mole use the same track. If he does, he is too tricky to go through a trap. There are several forms of traps in use here, but they are more or less a joke. Some have formidable spikes which are supposed to spear the mole, but I never have caught one with such a trap. I have now an English trap, but all I learned about catching moles in England is useless here. I have caught one in the trap in four years. I have set it in a main run and pegged it down, but Mr. Mole goes round or beneath it. I have tried castor beans and arsenated raisins, which western growers use with success, but of no avail, so it is now my intention to use the new calcium cyanide, which is being used in enormous quantities in the south and west for destroying moles, ground hogs, land crabs, ground squirrels, voles and similar pests. Calcium cyanide, an American discovery, does away with the use of acid as required for sodium cyanide. It is in the form of powder and has but to be poured into the runs at intervals. It is also being used for greenhouses, for while generating the deadly hydrocyanic gas, it is slower, therefore less dangerous. It has but to be sprinkled on the paths about ½ oz. to every 1,000 cubic feet, and the atmospheric moisture does the rest. Laid down at night, the house can be closed and left until morning, by which time the gas has dissipated, leaving nothing but free nitrogen and lime. Calcium cyanide is made by fusing sodium chloride with cyanamid, which latter is a nitrogeneous fertiliser made by fusing liquid air with calcium carbide.

T. A. WESTON.

TWO UNCOMMON PLANTS

ERICA STRICTA.

THE Corsican heath is no rare plant in the southern parts of Italy and of Spain, but I have never seen it in the open air in the gardens of central Europe. Even in England it seems to be rarely met with. The finest plants I came across were in the garden of the late Mr. Allard at La Maulévrie, near Angers, France. There I found years ago a fine collection of ericaceous plants, and among them the well flowering bushes of E. stricta, of which I took the accompanying photograph.

The bright pink flowers of the Corsican heath contrast well with the dark green foliage. They open rather late in summer, and for this reason the species is an even more desirable plant for the heath garden. It has rather stiff, rigid branches, and the leaves are arranged in fours. Whether there are some varieties with white or darker reddish flowers I do not know, at least there is none mentioned in the dendrological books at my disposal.

Behind the flowering plant of E. stricta in the picture there is a somewhat larger bush of the common tree heath that opens its fragrant flowers in spring, and it is a common feature of the landscape in the Mediterranean.

TAXODIUM DISTICHUM.

The North American bald cypress, Taxodium distichum, was introduced to Europe about 1640. According to Britton, in its native home it is confined to the coastal region from Southern Delaware to Florida, westward, near the Gulf, to Texas, and up the Mississippi Valley to Missouri and Indiana. It often forms great forests in swamps and along rivers and streams. In England as well as on the Continent the bald cypress or deciduous cypress, as it is often called, forms one of the most striking features in our parks. As its name indicates all its leaves and the small lateral shoots fall away in autumn. They form a fine feathery foliage which is of the palest and tenderest green in May, while it becomes beautifully reddish brown and somewhat shining in October. In spring as in fall the trees attract everybody's attention, and they have, as Bean rightly remarks, nothing similar to them in the whole range of hardy trees. They develop straight trunks, tapering to the top and buttressed at the base almost like those of sequoia. Besides, except in too dry a place, T. distichum has the peculiarity to form the so-called knees, upright projections from the roots, which often appear in great number. An illustration was given of this tree in THE GARDEN, March 14th, page 142. After all, this interesting and hardy conifer ought to be planted wherever a suitable place can be given to it.

ERICA STRICTA WREATHED IN ITS BRIGHT PINK BLOSSOMS.

Besides T. distichum, two more species are known of the genus. One of them, T. mucronatum, is a native of north-eastern Mexico, and I have never met with it on the Continent. It is closely related to distichum. Even the third species is often regarded as only a variety of it. Its correct name is T. adscendens, T. imbricarium being a synonym. The leaves of all its twigs are closely appressed and spirally arranged, not two-ranked as in the deciduous twigs of distichum. A pendulous form of adscendens is sometimes seen in our gardens under the name of Glyptostrobus pendulus, but the true glyptostrobus is a Chinese plant often called T. heterophyllum and rather distinct from the American species. CAMILLO SCHNEIDER.

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THE SPRING ROSE SHOW

MANY members of the National Rose Society travelled quite long distances to attend the "Feast of Roses" at the Royal Horticultural Society's Hall, Westminster, on April 24th last, and, we imagine, all felt themselves amply repaid for their journeys. There might, perhaps, have been a few more blooms in the hall, but the quality was surpassingly great, and this was not confined to the exhibits of the great trade growers, who have long ranges of glass houses at their disposal; for in some instances the amateurs more than held their own in the friendly rivalry.

There was no finer collection of exhibition roses in the Show than the twelve which bloom in the amateurs' section. The premier nurserymen's bloom, by the way, was a wonderful and deliciously fragrant Marechal Niel, shown by Mr. A. R. Goodwin.

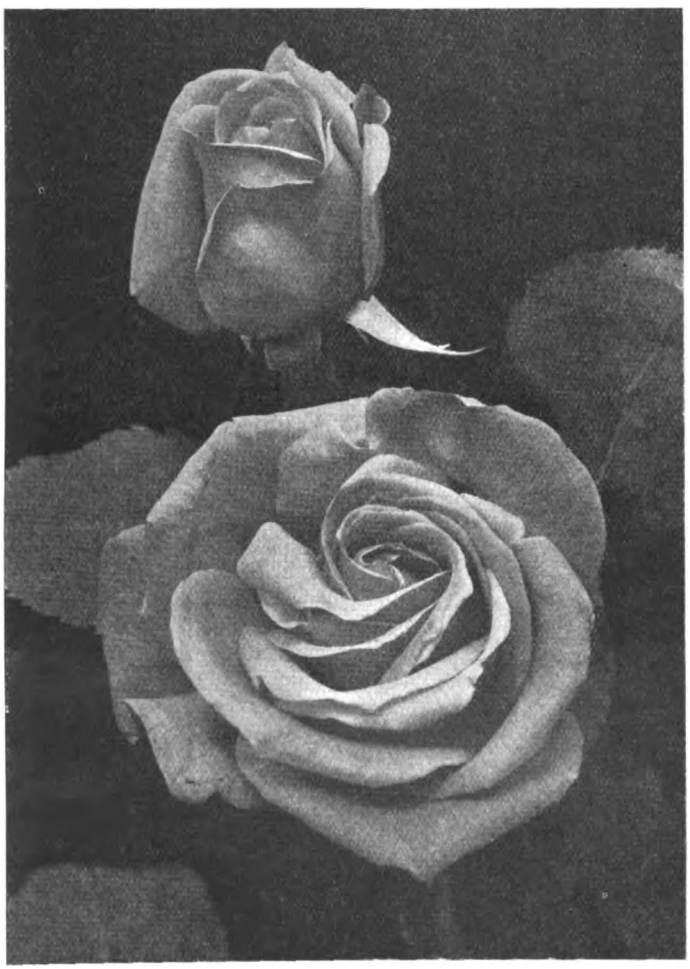
Although it was in a class open only to growers of not more than thirty pot plants the first prize six which Mr. C. Chambers of Harrow showed were of particularly good quality.

A basket of Mrs. Amy Hammond found many admirers, and it won the first prize for Mr. G. A. Hammond; while Mr. J. N. Hart, Potters Bar, was similarly successful with a basket of mixed varieties.

The great outstanding feature of the nurserymen's section was undoubtedly the magnificent group of roses so well arranged by Mr. Elisha J. Hicks, and this was of such superb quality that the judges awarded a silver-gilt medal in addition to the first prize. There were masses of bloom of all types. At the back such cluster-flowered varieties as Ellen Poulsen, Excelsa, Coral Cluster and Orleans were delightful, while high quality was provided by the vases of Marechal Niel, Chas. E. Shea, Ophelia, Los Angeles and similar varieties, placed on a lower level. A smaller group won the second prize for Mr. George Prince, and this included Lady Hillingdon, Pax, Augustus Hartmann, Souvenir de Claudius Pernet, Victoria and Charles E. Shea of high quality. Messrs. B. R. Cant and Sons and Mr. Walter Easlea also set up admirable groups of roses.

The only circular group on a floor space was exhibited by Messrs. Chaplin Brothers. On a raised centre they showed tall pillars of Godiva, American Pillar, Lady Gay and similar sorts; while below standards of Padre, Souvenir de Claudius Pernet and Golden Emblem, they had delightful dwarfs of Mme. E. Herriot, Maud, Ophelia, Golden Emblem, Mrs. Henry Bowles and Mrs. Herbert Walsh. Messrs. Chaplin Brothers were also the only exhibitors of six pillar roses.

Polyanthus roses in pots made a very pretty show. Mr. Pemberton's first prize group contained most flower, especially on Suzanne Turbat, Edith Cavell, Juliana and Jessie. Among the varieties shown by Messrs. William Cutbush and Sons we noted Salmon Queen, Chatillon Rose, Rudolph Kluis and Ellen Poulsen.



ROSE "TEMPLAR," WHICH RECEIVED A GOLD MEDAL.

'RED EXPLORER.' A NEW CLIMBING POLYANTHA ROSE.

won the first prize for Mr. G. A. Hammond of Burgess Hill. Mrs. Henry Morse, Mrs. Campbell Hall, Augustus Hartmann and Mrs. Foley Hobbs, for example, were excellent. In the class for six blooms of any one variety, Mr. Hammond also won the first prize, showing well nigh perfect specimens of Mrs. Foley Hobbs, and Mr. S. F. Jackson was a good second with the same variety.

A great many amateurs tempted fortune with six blooms of exhibition roses, and here the pride of place was gained by Mr. H. Oppenheimer, Caterham Valley, who won first place largely on account of the beautiful colouring of his specimens, which included Mrs. C. Russell, Mrs. R. D. McClure and W. E. Wallace. Mr. S. F. Jackson, who had to be content with second place, no doubt felt reconciled with the silver-gilt medal which his well nigh perfect bloom of Mrs. C. Lamplough won as being the premier

Exhibition roses in the trade classes were very good, and in their first-prize twenty-four Messrs. B. R. Cant and Sons showed considerable skill in colour arrangements. Their best sorts were Rev. F. Page Roberts, John Davison, Glory of Steinforth, Padre, and Margaret M. Wylie. Mr. Hicks was second, and he included Candeur Lyonnaise, Mrs. Foley Hobbs, Frau Karl Druschki and America of merit.

The class for twelve blooms of any one variety was one of the best in the Show. Mr. A. T. Goodwin was first with Marechal Niel, of perfect form and colour with most delicious fragrance, and one of his blooms won the silver-gilt medal as being the best in the trade classes. Mr. Hicks was second with Clovelly, of beautiful pink colouring; and Messrs. B. R. Cant and Sons were third with lovely Constance Cassoon.

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The baskets of roses were all highly decorative. The best two were of Lady Hillingdon and Mrs. Henry Stevens, shown by Mr. Hicks; while Mr. Goodwin was second with Marechal Niel and Frau Karl Druschki, and he was first with a wonderful basket of Marechal Niel in the class for one basket, where Messrs. Alex. Dickson and Sons were second with glowing blooms of Fred. J. Harrison and a crimson seedling.

The amateurs quite held their own in point of quality, though they could not show roses in such generous quantities as the trade growers. There was nothing finer than the twelve exhibition roses which Mr. G. A. Hammond showed. His specimens of Mrs. Amy Hammond, Mrs. Foley Hobbs, Mrs. C. Hall, Mrs. Henry Morse and William Shean were superb, as also were his six blooms of Mrs. Foley Hobbs in the class for any one variety; while Mr. S. F. Jackson was a good second with the same sort; and, although Mr. Jackson came second to Mr. H. Oppenheimer with six blooms in not less than three varieties, he included, in a magnificent Mrs. C. Lamplough, the medal bloom of the amateurs' classes. Mr. Oppenheimer's collection had more colour and included W. E. Wallace, Mrs. R. D. McClure and Mrs. C. Russell.

The two groups of roses in this section were also highly creditable. Mr. Hammond, who won the first prize, had a charming basket of Ophelia surrounded by vases of Muriel Wilson, Rev. F. Page Roberts, Mrs. E. Mawley and William Shean of fine quality. Mr. H. R. Darlington was second. Although Mr. S. F. Jackson was alone, he showed fascinating vases of mixed blooms in the class for six vases. Mr. Chalmers won the first prize in the class for growers of fewer than thirty pot roses.

The decorations of roses reached a high standard of artistic merit, and it was interesting to note that, apparently simultaneously, several ladies realised the value of sprays of purple Japanese maples for associating with their roses in the dinner-table decorations. Mrs. Courtney Page, who had this foliage and a few discreet fronds of maidenhair fern with Mme. Butterfly roses, arranged a most charming table and was deservedly first. Mrs. A. D. Ruff was second with lovely Melody roses; Mrs. Oakley Fisher, who associated maple sprays with Roselandia, was third; and Mrs. A. Robinson was fourth. In the trade class Mrs. May was first with Mme. Butterfly; Mrs. Tisdall was second with a glowing table of Richmond; and Mrs. A. R. Bide was third with Mme. Butterfly and purple maple foliage.

The bowls and vases were also most attractive. Mrs. Courtney Page, who mixed Mme. Butterfly and Ophelia, was first with a vase and second with a bowl where Mrs. Charlton was first with Mme. Butterfly. In the open class Mrs. A. R. Bide had a fine bowl of Mrs. G. Beckwith; Mrs. Tisdale was second.

A few exhibits of miscellaneous plants added interest to the Show, but of more special moment to rose lovers were the "sundries," such as the well known "Abol" preparations for combating insect and fungoid pests, and their fertiliser of excellent analysis, together with the Abol syringes. Messrs. William Cooper and Nephews, Limited, also showed insecticides of tried value and made an especial feature of their White Fly Fumigant, which is said to be very successful with this destructive and annoying pest. Katakilla—the name is well descriptive of the preparation—was attractively shown by Messrs. McDougall and Robertson, who also have a special hand-sprayer for distributing it to the best effect. Their weed killer, winter wash and the McDougall Fumer are all well known aids to successful rose-growing. Nowadays all the materials and apparatus supplied by these firms are most necessary to successful rose cultivation.

NEW ROSES.

ANGELE PERNET.—A vigorous Pernetiana seedling, well supplied with large shining leaves, good stems, and bearing medium-sized blooms of old gold colour flushed with peach pink. The flowers are sweetly scented and are of good shape in all stages. Certificate of merit. Shown by Messrs. G. Beckwith and Son.

BARBARA ROBINSON.—A useful hybrid tea variety which produces long, pointed buds of pale yellow colour which becomes creamy yellow when the flowers are fully expanded. Shown by Messrs. Alex. Dickson and Sons.

DAME EDITH HELEN.—This is a showy, rich pink hybrid tea rose, with well formed blooms borne on long, stout stems. The broad, substantial petals curl back prettily, making it a good variety both for exhibition and for the garden. Shown by Messrs. Alex. Dickson and Sons.

HYPATIA.—A vigorous bedding rose of medium size. The buds are pointed and the mature flowers are of salmon pink colour. Shown by Messrs. Bees, Limited.

JOAN HOWARTH.—This delicately beautiful rose has already received a certificate of merit, and, although it was larger and better than before, it did not receive the higher award. It is a fully double rose, made up of large substantial petals of deep flesh pink colour, and is recommended for the garden and for exhibition. Shown by Messrs. Bees, Limited.

GWYNNE CARR.—Another variety which has previously received a certificate. Although the blooms were very attractive, the foliage was not good, but we suspect this defect is not inherent in the variety and is only temporary. Shown by Messrs. Alex. Dickson and Sons.

LADY MARGARET STEWART.—A very vigorous hybrid tea rose which bears enormous solid flowers of good shape but rather gross appearance. In general the flowers are white, but they are tinted with yellow and with buff. They are slightly fragrant and the foliage is very good. Certificate of merit. Shown by Messrs. Alex. Dickson and Sons.

MAUD E. GLADSTONE.—An attractive polyantha variety nearly 2ft. high. It is free-flowering and bears large trusses of double flowers of old-fashioned shape and pretty pink colour. The buds are coloured deep coral pink. This should be a very useful variety for garden decoration. Shown by Messrs. Bees, Limited.

ROSELANDIA.—This valuable yellow hybrid tea rose received an award of merit at the R.H.S. meeting. Certificate of merit. Shown by Mr. Walter Stevens.

SENSATION.—An exceedingly sweetly scented hybrid tea rose of deep velvety maroon colour lightened at the edges of the petals by crimson. It is beautiful in the bud state and of goblet shape when mature. The stems are practically spineless and the foliage is good. Besides being a good garden rose it is recommended for forcing. Shown by Messrs. G. Beckwith and Son.

SALTAIRE.—Another deliciously fragrant dark rose, but, as shown, makes excessive foliage. The fully double hybrid tea blooms are of medium size and deep velvety crimson colour, which almost suggests what might be termed a deep, burnt cardinal. Certificate of merit. Shown by Messrs. Alex. Dickson and Sons.

TEMPLAR.—Still another dark hybrid tea rose possessing in a marked degree that precious gift of rich fragrance. Allied to this most desirable quality is rich crimson colour with a fascinating sheen of maroon in the heart of the rose. The stems are practically spineless and the neat foliage is a rich dark green. It is recommended for "garden and bedding"; the goblet-shaped blooms have not sufficiently good foliage for the exhibition board. Gold medal. Shown by Messrs. G. Beckwith and Son.

WHITE ENSIGN.—This is decidedly the best new rose of its type for many years past. The perfectly shaped, medium-sized flowers are borne on long graceful stems which carry neat dark green foliage. The plants are of free branching habit and the variety is recommended for forcing purposes as well as for the garden. At a little distance the blooms appear to be pure white, but a closer inspection reveals a fascinating creamy centre. Certificate of merit. Shown by Messrs. S. McGredy and Son.

WILLIAM BOWYER.—Half a dozen dwarf plants, unaccompanied by the customary vase of cut blooms, were shown of this dwarf hybrid tea rose. The moderately fragrant, medium-sized blooms are of crimson-maroon colour. Shown by Messrs. Chaplin Brothers.

RED EXPLORER.—Presumably this fine climbing polyantha rose was shown in competition for the Cory Cup, which is not awarded until after the Autumn Show. A splendid pot plant rather over 6ft. high was shown, and this was well furnished with erect trusses of bright crimson flowers. It is said to be a sport from Edith Cavell. Shown by Messrs. Cutbush and Sons.

SYNTHYRIS RENIFORMIS.

IT is a little surprising to find how few, even among those who are really enthusiastic rock gardeners, are well acquainted with the synthyrises, which hail from north-west America, and some of which are of real grace and charm in the rock garden. Up to the present only a few species have been described, but I do not think that any but S. reniformis and S. pinnatifida are in commerce. Of the two I have not the slightest hesitation in asserting that S. reniformis is far and away the better. Alike in foliage and in flower, it is more attractive, and it is quite as easy to grow. Personally, I have never cared to trouble with S. pinnatifida, which I have seen in several places where S. reniformis was also cultivated, deeming it inferior to S. reniformis, which I prize as one of the best of alpines, but the former gained the favour of the late Mr. Farrer to some degree, although not so highly as S. reniformis, as he speaks of its "dainty plumes of blue." Its leaves, as the specific name would suggest, are finely divided. The spikes are also a little taller. S. reniformis is worth looking at even when out of bloom, with its tufts of rounded or kidney-shaped, brownish, rather leathery, prettily scalloped leaves. Its crowning beauty is, however, in April, when it comes into bloom and gives us its 4in. to 6in. spikes of violet flowers.

It belongs to the same Natural Order as the veronicas, and one observes at once the family resemblance in the flowers, though on the spike they present, as Mr. Farrer remarks, a "furry" appearance. They are most delightful, especially to those who can appreciate the smaller gems of the rock garden. In its native habitats S. reniformis grows among grass near streamlets on the slopes of the mountains near the Pacific coast, but in cultivation, although it likes a cool situation, it seems happy enough in sun or shade. Still, save under exceptional conditions, it is well to adopt the native habitats as suggestive of its requirements with us, though omitting the grass, and I prefer a cool place in the rock garden for this delightful little alpine flower. There is said to be a yellow, but undesirable synthyris called S. Bullii, but the possession of S. reniformis will enable its owner to enjoy the beauty of the most fascinating member of the family.

S. ARNOTT.

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CORRESPONDENCE

HOME HYACINTH GROWING.

SIR,—The hyacinths seen in this illustration are grown by Miss A. E. Coles of Radlett, where this lady enthusiast raises these lovely flowers for the benefit of friends and any of the general public who like to call at her beautiful dwelling to see the gems. About three hundred bulbs, growing in sixty or seventy receptacles of all sorts, fill the room with their wonderful fragrance. Miss Coles takes pride, and justifiably so, in pointing out the fact that the work is all done by herself. She places soil in the bowls, etc., just taking some ordinary garden soil or compost from an old cucumber bed, and uses small stakes from the prunings of her fruit trees to support the blooms. A few varieties that struck one with their beauty were Perle Brilliant, of porcelain blue and large-sized bells, the spikes of which, when the writer saw them, were no less than from 12ins. to 15ins., while even King of the Blues, grown for a second season, were from 6ins. to 9ins. in length. Chestnut Flower, a wonderful variety, most distinct in appearance, strong growing and

A FINE COLLECTION OF HYACINTHS GROWN IN ORDINARY GARDEN SOIL.

with double bells of soft rose pink, deeper within, were thriving in large quantity, while another glorious dwarf variety that stood out against its fellows was Orange Queen, opening pink and turning to a creamy buff, and in good contrast to it was Orange Brilliant, a striking variety with orange and red tones. Some other varieties grown were Loveliness, Lady Derby, Princess Victoria, La Grandis, Electra, Distinction, Salvator and Fair Ellen.—A.

SWEET SCENTED CYCLAMENS.

SIR,—I was much interested to read Mr. C. Turner's letter on scented cyclamens in your issue for April 18th. I think it may interest your readers to know they can procure seed of these from Messrs. Sutton and Sons, who claim they have seed of "large-flowered, sweet-scented." I fear it is the present-day desire of growers to sacrifice everything for size of blooms, hence our scentless cyclamens of to-day. I for one have sown a packet of Messrs. Sutton's seed and am growing on thirty very strong young plants of which, I feel sure, I shall much enjoy the scent next winter and spring.—E. MCCREERY.

DIGGING AND TRENCHING.

SIR,—I would crave your kindness again to refer to the above very controversial subject, and in particular to the very courteous letters of "G. H. H." and "J. H.," which appeared in the issue of THE GARDEN for April 18th. Firstly, my experience with soils has extended nearly the whole gamut, including such trying subjects as sandy soil overlying gravel subsoil, and also chalk soils, and I have never yet hesitated to delve right into them in order to bring the under layers up to the surface. My idea is best summed up in the words, "If a thing is worth doing, it is worth doing well," and though the gradual process suggested by "G. H. H." may appear to many a sane gardener as a good and useful compromise, where subsoil is what may be termed "bad," yet I would assure them that it would pay better in the long run to "go the whole hog," and bring up that inferior material straight away without hesitation, though it may require a modicum of moral pluck to do so. In this act you open up the packed lower layers, afford a certain amount of drainage, and prepare a better root-run, and at the same time you bring under immediate control the poorer part of the soil and place it into a position where it can receive more direct attention with a view to its reformation as a bad character.

I would give two concrete examples of this method of trenching for this poor conditioned subsoil. The first case is when at Aldenham, during the distressful period of war, we placed every possible acre under vegetables for food purposes. One area so treated was a space of thirty acres exceptionally poor pasture land, covered with hummocks of grass, and an insect-infested space at best. The tussocks were rooted out, and for the first season, in order to give birds and frost their scope in ridding the soil of the company of wireworm, etc., it was only shallowly ploughed. The treatment was effective with regard to the pests, but I was not satisfied with the crops gained from the ground, even though the main part was under potatoes. Not disappointed though, for the return was good, but not such as I wished to get, for I had to break from my usual method. The second season, however, the ground was broken right into and the soil inverted, and then we did get the results, even though we had brought the subsoil to the top. The other instance was another piece of ground in poor fettle, and again of the London clay type. This, in order to get the results from it, was trenched by hand, and one part of it was planted with cauliflowers. The result was actually astonishing, for, despite the heavy character of the ground (and we had not been able to add much material to benefit it), the broccoli thrived so immensely that many of the heads weighed up to 12lb., some going over that weight, of the prettiest, firmest curd that any grower could wish to see.

Another point that "J. H." refers to is the effect of climate on the soil. This at the best must be a question of what, for want of a better term, is generally termed luck! It is owing to the possibility of there being no extended frosty period but in lieu thereof a probablility of heavy rains, that I advocate that heavy soils should not be trenched until late winter and early spring; for, by deferring to such time, the risk of the ground packing again through the beating effect of rains and percolating water is lessened by the shorter space of time intervening between trenching and planting. Naturally, whatever the climatic influences, the surface of the soil requires to be broken or fined down in preparation for sowing or planting. Here let me interpose a remark to "J. H." that his suggestion that much labour, even up to ten times that available to the average grower, is permissible to produce the exhibition vegetables from Aldenham, is very wide of the mark. Probably the secret of such success is organisation and the methods of oil preparation that I am now defending, for on our large areas of vegetable ground, which are admittedly on a bigger scale than, say, the average garden, I do not think the man power per acre would work out so much as is often employed on quite tiny patches of ground. Certainly it is not above the average, for the preliminary work, along proper lines, helps enormously in the later stages.

Just a last word or two on the matter. Even if you who read these notes only have quite a small garden, I would advocate the trenching method, better trench half the garden than only scratch the whole surface of it over. You will then get the results, though it may mean a certain amount of more strenuous labour at the start. Further, should the results not mature the first season, see if you can discover where you have failed, and repeat the process of trenching the next season undismayed, for in my opinion you are on the right road to success. Work in all the vegetable refuse material you can, and the remains of the garden rubbish fire. All this sort of thing helps, so trench! trench!! trench!!!—EDWIN BECKETT.

ONIONS AND RATS.

SIR,—The enclosed will, I think, interest some of your readers. It is an extract from a letter received some time since from Devonshire. I understand that rats never eat onions, and, presumably, shallots. If so, why on earth do they hoard them? Perhaps someone can explain. "The following may amuse you. On or about the shortest day I planted my shallot bed. It took 66 sets (my own special sort and none left for replacements). Within a week every set had gone bar one. A month later I found two rat-holes near my garden. I dug them out—recovered the 65 sets exactly and replanted them, and now they look like giving the usual crop."—CHARLES S. ROBINSON.

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GARDENING OF THE MONTH

FLOWER GARDEN.

ANNUALS AND BIENNIALS.—Make further sowings of clarkia, iberis, lavatera, godetia, ageratum, etc. Sow thinly and cover lightly. Thin annuals sown last month. Prick off hardy annuals into reserve beds. Plant out at end of the month stocks, asters, etc., after hardening off. Sow Canterbury bells, Campanula pyramidalis, hollyhocks, myosotis, scabious, wallflowers, sweet williams, etc.

AURICULAS AND POLYANTHUS.—Sow outside. Lift and divide old plants after flowering. Plant out in a shady border. Water if weather is dry.

BEDDING.—Harden off bedding plants. Plant out the hardiest at the end of the month. Lift spring bedding when finished and prepare the beds for summer plants.

BULBS.—Dry off those not required for the wild garden.

CANNAS.—Harden off. Stand outside and expose fully to sun.

DAHLIAS.—Harden off. Plant out first batch at end of the month.

HERBACEOUS BORDERS.—Stake and tie up growths. Weed and hoe regularly. Thin growths of phlox, helenium, rudbeckia, etc. Thin out shoots of choice asters.

HOLLYHOCKS.—Transplant autumn sown seedlings. Plant out seedlings in frames.

LILIUMS.—Plant in permanent quarters L. auratum and L. speciosum, now growing in pots in frames.

PERENNIALS.—Continue to propagate by means of cuttings. Mulch choice perennials with short manure.

PRIMROSES.—Plant out in shady positions.

ROSES.—Stake standards. Guard against rose maggot. Syringe with "Abol," or with soft soap and tobacco solution. Tie in growths of climbers and ramblers. Feed with liquid manure at intervals.

SWEET PEAS.—Sow to form a succession. Pinch side growths of young plants. Tie up to stakes. Water during dry weather.

VIOLETS.—Hoe between the rows. Water if dry. Spray in the evenings to keep down attacks of red spider.

WATER AND BOG GARDEN.—Plant aquatics and waterside plants now.

LAWNS.—Mow, cut all edges, and roll regularly. Weed and apply worm killer. Give a dressing of a good lawn manure.

HARDY FRUIT.

APPLES AND PEARS.—Examine for aphis and spray soon. Keep down American blight. If roots attacked inject carbon bisulphide into the ground 2ft. away from the stem.

APRICOTS.—Thin the fruit partially, leave the remainder of the work until after stoning.

BUDDED TREES.—See that the young shoots are securely tied, otherwise they may be damaged by wind.

CHERRIES.—Syringe dessert cherries regularly with soft water to keep the foliage clean. Spray with quassia solution if attacked by aphis. Repeat the spraying two or three times until attack has abated.

CURRANTS.—Keep ground clean round black currants and encourage basal growths. Syringe with tobacco and soft soap solution for currant aphis.

GOOSEBERRIES.—Dust with hellebore powder or spray with quassia extract to keep down gooseberry sawfly. Sprinkle lime under young trees.

GRAFTED TREES.—Secure grafts and remove all shoots below the grafts.

PEACHES AND NECTARINES.—Disbud the shoots. Tie in young growths left. Pick off leaves infected with leaf blister. Spray with sulphur and soft soap if mildew present.

PESTS.—Spray with Bordeaux mixture trees infested with leaf-curl.

STRAWBERRIES.—Plant out forced strawberries. Give a dressing of artificial manure before bedding down with straw. Use superphosphate at the rate of 2oz. per square yard and water in. Place nets over the beds before the birds are likely to do damage.

RASPBERRIES.—Thin out weak canes. Give a mulching of rotted manure and several soakings of liquid manure.

WALLFRUIT.—Water frequently. Remove any protection, dry the blinds, etc., and store. Syringe on warm afternoons. Syringe with nicotine solution to prevent damage by insect pests.

GENERAL.—Thin stone fruit. Spray with arsenate of lead when the fruit has set. Water newly planted trees.

VEGETABLES.

ASPARAGUS.—Keep the beds clean. Feed with liquid manure. Do not cut too heavily.

BEANS, BROAD.—Make a final sowing of a late kind. Pinch tops when black fly seen.

BEANS, SCARLET RUNNERS AND FRENCH.—Sow in drills in the open. Plant out, after hardening off, those raised in boxes.

BEETROOT.—Thin seedlings 6ins. to 9ins. apart, and make a sowing at the end of the month in showery weather.

BROCCOLI.—Prick out those sown in April.

BRUSSEL SPROUTS AND CABBAGE.—Plant out on prepared ground.

CARDOONS.—Sow seed now.

CARROTS.—Hoe. Thin seedlings. Dust with soot when foliage damp.

CAULIFLOWERS.—Plant out at end of the month early varieties.

CELERY.—Prepare more trenches if necessary and plant ridges with lettuce. Prick out late supplies. Plant during the third week the main crop supplies.

CHICORY.—Sow in a sheltered position.

CUCUMBERS.—Harden off ridge varieties sown under glass. Plant on hot bed when weather warm. Syringe foliage twice a day.

LEEKS.—Finish planting out before middle of month.

LETTUCE.—Make further sowings. Tie up heads ready for blanching. Thin seedlings. Place soot and lime round plants to keep off slugs.

MARROWS.—Harden off those under glass. Plant out if weather congenial. Cover with hand lights at night.

NEW ZEALAND SPINACH.—Plant out seedlings now in frames.

ONIONS.—Guard against onion fly. Dust with soot. Thin to 4ins. to 6ins. apart. Hoe regularly and give occasional dustings of a fertiliser.

PARSNIPS.—Thin out and hoe in between.

PEAS.—Stake, make further sowing of marrowfats. Pinch tops as they come into bloom.

POTATOES.—Earth up earlies.

RADISHES.—Make sowings of French Breakfast. Water regularly.

TOMATOES.—Harden off well and plant out at the end of the month against a south wall. Sow autumn fruiting tomatoes.

TURNIPS.—Sow in cool, shady border for late summer supplies.

SHRUBS.

FLOWERING SHRUBS.—Prune forsythia, ribes, syringas, etc., after flowering.

HOLLIES.—Transplant now. Lift with a good ball of soil. Water when in new position.

FLOWERS UNDER GLASS.

AGAPANTHUS.—Give occasional feeding with liquid manure.

ARUMS.—Stand outside in sheltered corner after flowering and gradually decrease supplies of water.

AZALEAS.—Top-dress or re-pot after flowering. Stand outside on boards in partial shade. Do not let them suffer from lack of water.

BEGONIAS.—Pot on tuberous rooted kinds at the end of the month, if required for inside decoration.

CALCEOLARIAS, HERBACEOUS.—Stake and tie, fumigate for aphis. Sow a batch in pans.

CHRYSANTHEMUMS.—Give final potting at end of month if sufficient roots made. Pot very firmly. Pinch points of single and bush varieties. Give preliminary stakes. Do not pinch late varieties. Stand outside on boards if weather good during fourth week.

CINERARIAS.—Sow in pans and place in a cold frame.

CYCLAMEN.—Shake out old corms and start them in a bed of leaf soil. Spray young plants daily and stand in frames.

CYTISUS.—Stand outside after flowering. Pot off rooted cuttings.

LILIUMS.—Top-dress as roots appear on the surface. Give more water as growth increases. Ventilate freely. Damp down each morning and watch for aphis. If attacked, fumigate at once.

PELARGONIUMS.—Stake and tie. Feed well. Pinch the points.

PERPETUAL CARNATIONS.—Transfer to frames and stand on bed of ashes. Stake and tie. Feed occasionally. Re-pot when necessary. Syringe to keep down red spider.

PRIMULAS.—Prick off into pans and place in frames for the summer.

ROSES.—Give dose of liquid manure and disbud.

SALVIA PATENS AND COLEUS.—Take cuttings, insert in sandy compost.

SPIRÆAS.—Plant out after forcing in a shady position.

GENERAL.—Pot on all young stock as soon as sufficient root made. Ventilate well. Shade if sun hot, damp down, attend to watering carefully. Water twice daily if temperature rises considerably.

FRUITS AND VEGETABLES UNDER GLASS.

APRICOTS.—Tie down young shoots. Do not tie tightly at first. Ventilate well.

FIGS.—Maintain warm, dry atmosphere for figs in pots and cease syringing when fruit ripening. Water fig borders with liquid manure.

MELONS.—Support the fruits. Pinch, stop and tie shoots. Syringe and water carefully. Give a top-dressing when roots appear through the soil. Sow seed for late crops.

ORCHARD HOUSE.—Give good supplies of water and occasional doses of liquid manure. Spray with nicotine solution to keep down aphis. Thin gradually the fruits when set. Remove weak laterals.

PEACHES AND NECTARINES.—Give more air, ventilate well during the day. Mulch with rotted manure after stoning. Temperature higher during stoning period. Feed as fruit swells. Use liquid manure, guano or Thomson's vine manure. Tie down loosely the new shoots.

VINES.—Keep temperature even. Ventilate well whenever possible. Water well. Thin grapes. Stop sub-laterals. Pollinate muscats. After thinning sprinkle border with artificial manure and give a mulch of farmyard manure.

CUCUMBERS.—Pinch shoots. Top-dress mounds. Syringe and damp down. Plant out some in frames and syringe daily.

DWARF BEANS.—Make a sowing in a cold frame.

MARROWS.—Pollinate the fruit. Feed when swelling.

PEAS.—Give doses of weak liquid manure when pods swelling. Ventilate well.

TOMATOES.—Pot on plants for fruiting outside. Use 6in. pots. Remove side growths and gradually harden off. Top-dress and give a quick acting liquid fertiliser to plants in pots for fruiting in the houses.

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SIMPLE GARDENING

GROWING ANNUALS FOR EXHIBITION.

ANNUALS are grown now by everybody who possesses a garden large enough to contain a few beds, or even one small border. As classes at shows are provided for the cut flowers, exhibitors are numerous, too, in some districts. There are new exhibitors every year, and the majority are not conversant with the culture and staging of the plants and flowers, respectively. Many kinds of annuals are "weedy" in habit when not well grown, and quite attractive when well cared for. It is from the latter that prize flowers are cut. I am presuming that the soil has been deeply dug or trenched, as a shallow-tilled soil is not an ideal one for the plants. It should be moderately rich, too, as weakly plants are not able to produce strong stems bearing fine flowers. Many hardy annuals are raised from seeds sown in the open border direct. Of course, slugs are troublesome and often thin out the seedlings too severely; but early thinning-out should be the rule, so that every plant has room to attain full size. Early staking, with neat stakes, is also essential. During hot spells plants in light soils should be surface dressed; timely feeding and regular watering in dry weather should not be overlooked. Remove fading flowers, stage those that are fresh, richly coloured and even in size. Always cut the stems long enough, then light arrangement is possible. The following is a selection of twelve kinds: Phlox Drummondii, Yellow Sultan, Cyanus minor, Jacobæa elegans, Clarkia elegans, Linaria reticulata, candytuft, godetia, mallow, linum, collinsia, poppy.

FEEDING PLANTS.

Many inexperienced cultivators think that all plants require feeding, and make serious mistakes. Sickly-looking plants —those having yellow leaves—and tiny ones, looking stunted and so on, are regarded as being fit specimens for feeding. Now, all such plants, grown in pots, should be carefully examined before stimulants are applied. Food must be taken up by the roots, so if the latter are few in number or some of them are dead, it is useless to apply a stimulant; in fact, it does more harm than good. Turn out the plants and ascertain if roots are freely permeating the soil round the sides of the pots and that the drainage is good. If these conditions obtain, then food is required by such plants. We can now obtain, at reasonable prices, concentrated manures suitable for all kinds of crops. The wise course to take is to follow the instructions and err on the right side—that is, apply rather weaker doses than stronger. The principle of using a small quantity and often, in preference to big doses and seldom, is a right one. All soils should be moist when manures are applied, by rain or thorough applications by water-can. About one hour after the soil has been moistened by clear water is an ideal time for applying manures as stimulants. Seedlings should not be treated with such stimulants. Good soil and careful watering with clear water are all they need in this way. Sickly plants should be similarly treated—nursed carefully, not fed.

HOW TO PREPARE CELERY AND LEEK TRENCHES.

As a passer-by one sees celery and leek plants growing in many gardens, some making satisfactory progress and others doing badly. When the late summer and autumn shows come one sees, practically, the season's growth of these plants, and the same tale may be told. Both kinds of plants require high cultivation and, though the inexperienced may be aware of this, he thinks that high culture consists chiefly in making deep trenches for the plants; he grows the plants in the poor subsoil and blanches them in the top good soil. I would like to urge cultivators to grow the plants in the best soil; if trenches must be made, then be content with very shallow ones. Take out the top 9ins. of soil and place it on one side of the trench, and the second 9ins. on the opposite side. Then fork into the subsoil a liberal supply of well rotted manure, loosening and breaking up that subsoil thoroughly. The next thing to do is to return the first soil removed in making the trench and to improve it by adding wood ashes, rotted manure and bone-meal. If wood ashes are not available, use soot. Mix all ingredients with the soil. Result: the trench will be about 6ins. deep, below the normal level, and the soil will be improved for the reception of the plants if it remains so until the first part of June. In due course, the second layer of soil removed will be available for earthing-up and blanching purposes.

TUBEROUS BEGONIAS.

I strongly recommend these plants for the greenhouse and the garden during the summer months; they are very charming and economical plants to grow. In both dry and wet seasons the foliage remains fresh and the flowers numerous and brightly coloured. The colours in mixed beds do not offend the eye as those of some other kinds of plants do. Owners of small gardens may soon obtain a supply sufficient for their needs by writing to firms who grow fine batches of plants and advertise them in THE GARDEN. Whether they do this or raise their own stocks, the borders should be prepared by deep digging and adding to the original soil some fibrous loam and a small quantity of half-rotted leaf-soil; not any peat.

It is very important that the growth be short-jointed and sturdy, then there will be few losses through strong winds breaking off stems. With regard to plants for greenhouse and conservatory, all such may be successfully grown without the aid of fire heat; and, provided sufficient ventilation be the rule, shading is quite unnecessary save in the case of a greenhouse in a very hot corner. GEORGE GARNER.

ANSWER TO CORRESPONDENT

Conservatory and Greenhouse (I.O.M.) —Seed of Lathyrus pubescens can be obtained from Messrs. Thompson and Morgan, Ipswich, who also used to offer seeds of L. splendens. If unobtainable there, we should advise you to write to Messrs. Howard and Smith, Olive Street, Los Angeles, California, U.S.A.

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WHERE WILL IT END?

THE rhododendron show last week will bring home to gardeners more than anything else the plethora of species and hybrids that are now appearing on the scene. Although there are many fine hybrids which I am proud to grow, yet I have always stated my preference for species, and for this I am often considered a crank. Many species only differ in slight botanical characteristics, and so, to the ordinary gardener, may appear as closely resembling each other as do hybrids; but there is this difference, that species on their arrival into this country usually get into experienced hands and are weeded out before they reach the ordinary garden; also, most species come true from seed, with, perhaps, only slight variation of colour. The consequence is that the ordinary gardener will in time get together a collection of species; but they will be a selected list, weeded out for him by experts.

Unfortunately, this is not the case with hybrids. Owing to the fact that they are not fixed plants, a pod of a rhododendron which is in itself a hybrid, or a pod from a species which has been fertilised by another different species, will produce a collection of offspring of great variety which may lie anywhere between the parents. A number of years may elapse before their worth can be judged, and it is only natural that hybridists, who have spent infinite time and labour in growing these plants, will feel chary about discarding any except the obvious ugly ducklings; but the weeding out process is not nearly thorough enough, and many new hybrids appear under names which are practically the same as something else already in existence. This does not apply only to rhododendrons, for this craze for hybridising has reached into many corners of the garden.

Now, what is the object of hybridising? Either to improve on something already in existence or to supply a form which does not appear in nature. It is said, and it is certainly true, that hybrids are more vigorous than species; but is it necessary to have a more vigorous plant? Vigour often tends to coarseness of growth, and coarseness of growth leads to lack of individuality and so removes one of the greatest charms that rhododendron species possess. It is also said that hybrids are hardier than species, but this I very much doubt. Most of the rhododendron enthusiasts live in an equable climate, which is one of the reasons that they have become enthusiasts. It is only those who live in the east or the north who can really decide upon the hardiness of rhododendrons in general, and I should certainly say that hybrids, with the exception of those with caucasicum blood, are just as liable to frosting as many species.

There are certain obvious lines upon which rhododendron hybridists can work, hybrids which will flower from July onwards, yellow rhododendrons and blue rhododendrons. So far these rhododendrons are conspicuous by their absence; in their place we get numbers of luscious-looking hybrids in good colours, which are very fine in their way; but are they any better than what we have seen before? They are certainly not hardier, nor are they better growers. If half a dozen various hybrids were placed in a row it might be possible by direct comparison to pick out the best, but the improvement noticeable is usually very slight. In my opinion, the most useful new hybrid shown at Vincent Square last week was Messrs. Van Nes' cross between Azalea Hinodegiri and A. Kæmpferi. If you like those small and very free-flowering azaleas of the Hinodegiri type, with colours that sometimes may be harsh but are always brilliant, here is a distinct advance, for Hinodegiri is not hardy except in the extreme south and west, while the new hybrid apparently stands our weather perfectly. There was nothing exactly of this type before, so for those who like this type of plant the new hybrid is a decided improvement.

As I said before, these remarks do not only apply to rhododendrons. Slight improvements in varieties and hybrids are of little use to the ordinary gardener; what he wants are wider breaks and fewer of them. What is required is some central hybridisation authority where a committee would appraize the worth of a new cross after testing it alongside of its older neighbour. There are a number of useful lines on which a hybridiser can work if it is hybridisation that interests him. Let him try to evolve a soya bean that is suitable for cultivation in this country. Then, again, no one has ever used any of the many admirable rubi from China for producing a new berry, by crossing with a raspberry. Who knows what luscious morsel might not be produced?

E. H. M. C.

OUR NEXT ISSUE IS THE SPECIAL CHELSEA SHOW NUMBER, WHICH WILL BE ON SALE AT "THE GARDEN" STAND ON WEDNESDAY, MAY 20th.

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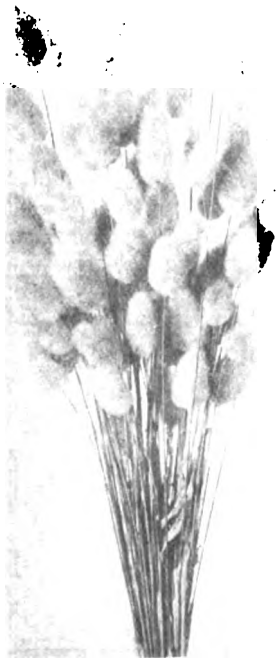
DECORATIVE GRASSES

FOR INTERIOR DECORATION IN THE WINTER MONTHS THE GRASSES WITH THEIR CHARMING HABIT AND GRACEFUL INFLORESCENCES ARE HARD TO BEAT. A SELECTION WHICH WILL BE FOUND USEFUL IS GIVEN IN THIS ARTICLE.

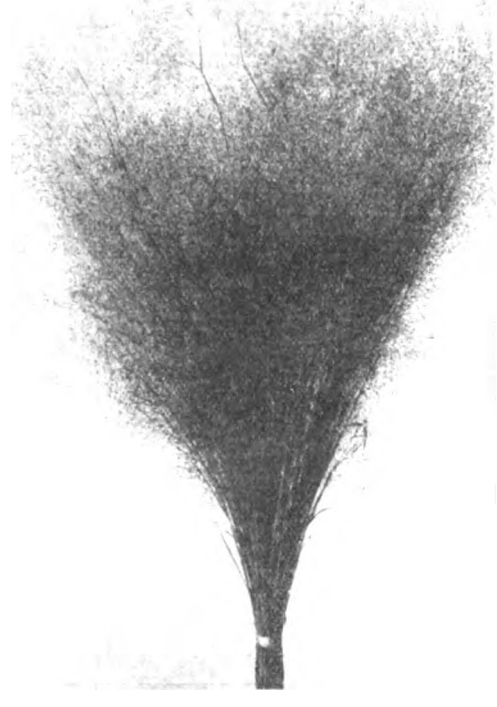
WINTER extends over a long period, and not everybody possesses the means of making his home gay with greenhouse or imported flowers. Ornamental grasses can, to a certain extent, serve as a substitute, especially if a good selection of them is made and a change made occasionally in the vases before heat, dust, etc., have altered the exposed inflorescences. These ornamental grasses can be grown very easily and at very little expense in every garden. All they require is moderately good ground and an open situation. The reason of their not being more generally grown rests certainly in the fact that they are usually harvested at the wrong time—that is, when the vegetation is nearly at an end and their seeds are nearly ripe. The result of this is that the inflorescences are of a washy colour and the spikelets soon drop. If everybody had the foresight to cut the stems when still in a green state, soon after flowering has taken place, the result would be infinitely better. It would, in fact, be a revelation to many who have no idea of the gracefulness and the diversity of ornamental grasses in general and of their possible uses. There can be, of course, no question of comparing these grasses with lovely fresh flowers; but during the absence of everything brilliant from the garden, from November till March, everyone becomes less exacting in his requirements, and what would have been considered an item of medium interest in the height of summer becomes then, when handy, of some value for decoration.

Although, on some occasions, it is possible to grow ornamental grasses directly in the border or in the pleasure garden (as in the case of Tricholæna rosea and Paspalum elegans, for instance), it is best, as a rule, owing to the ugly look of the plants after the stems have been cut to cultivate them in an odd corner in the kitchen or back garden. There the gardener can keep them constantly under his eye and cut the stems as soon as desirable without taking any notice of the look of the plant afterwards. As soon as harvested, the inflorescences are laid in a dry, airy place where they can gently come to a dry state, at what time they can be put together into small bunches that are kept away from any dust pollution till they are wanted the following winter.

Many common and native grasses are ornamental and can be used for decoration when properly harvested. But for anyone who wants to grow really showy subjects, the best thing is to adopt only commercial kinds, mostly exotics, that are offered in catalogues. These commercial grasses can be divided into two classes: the annual and the perennial ones. Probably the most important and the showiest are the annuals, perennials having the advantage, of course, of coming up year after year and of requiring less attention. A number of the latter, however, are best treated as annuals, owing to their susceptibility to winter cold and dampness.



LAGURUS OVATUS WITH SHOWY INFLORESCENCES.



THE LIGHT GRACEFUL PANICLES OF OF AGROSTIS NEBULOSA.

THE BROAD FLATTENED SPIKELETS OF BRACHYPODIUM DISTACHYUM.

The following species and varieties can be given as a selection among those that are most suitable:

AGROPYROM CRISTATUM.—Perennial; 2½ft.; ears erect, flattish, vivid green.

AGROSTIS NEBULOSA (A. CAPILLARIS).—Annual; 1½ft.; exceedingly light and graceful panicles.

AIRA CÆSPITOSA VIVIPARA.—Perennial; 3ft.; effective if cut at an early stage.

BRACHYPODIUM DISTACHYUM.—Annual; 1ft.; broad, erect, flattened spikelets. Very charming.

BRIZA GRACILIS, B. MAXIMA, B. GENICULATA, B. MEDIA.—The three first mentioned are annuals, the last perennial. These well known grasses have the most graceful aspect. B. maxima has the largest spikelets.

BROMUS MACROSTACHYUS.—Annual; 2½ft.; erect habit. A most decorative grass.

BROMUS PENDULINUS.—Annual; 1½ft.; large, flattened, drooping spikelets.

CHLORIS BARBATA.—Annual; 1½ft.; digitate, highly decorative inflorescences of a very unusual type.

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CHLORIS DISTICHOPHYLLA.—Annual and perennial; 1½ft.; very showy, but a strong lover of heat.

COIX LACRYMA-JOBI.—Annual; 2½ft. This is the well known "Job's Tears" plant that America is beginning to use as a forage in hot districts.

ERAGROSTIS MAJOR (E. MAXIMA).—Annual; 2ft. Probably the most showy of all eragrostis. Large erect panicles. Mention may also be made of E. Fontanesi and a few others with more slender inflorescences.

GYNERIUM ARGENTEUM.—Perennial; 8ft. This is the well known pampas grass, common in many gardens. Pink-flowered varieties are also very showy.

LAGURUS OVATUS.—Annual; 1½ft.; very showy inflorescences of most graceful and light aspect. A first-rate plant.

LAMARKIA AUREA.—Annual, ½ft.; a dwarf plant with yellowish, silky, pretty spikelets.

LASIAGROSTIS CALAMAGROSTIS (CALAMAGROSTIS ARGENTEA).—Perennial; 3ft.; graceful arching panicles.

MELICA PENICILLARIS.—Perennial; 3ft.; erect inflorescences of white, very light appearance. Other melicas are also beautiful: MM. ciliata, nebrodensis, transylvanica, etc. Melica altissima rubra has lovely tinted red inflorescences.

PANICUM VIRGATUM.—Perennial; 4ft.; light inflorescences. One of the best perennial ornamental grasses.

PENNISETUM VILLOSUM.—Perennial; 2½ft.; silky heads of showy aspect. A most lovely plant. The form atro-purpureum has nicely purplish tinted heads.

PHALARIS CANARIENSIS.—Annual; 3ft. This is the well known Canary grass, quite showy if harvested early.

PHLEUM ALPINUM.—Perennial; ¾ft.; tiny erect ears, very graceful. Phleum Boehmeri, of about the same type, has ears distinctly stouter and shorter.

POLYPOGON MONSPELIENSIS.—Annual; 1ft.; dense, erect, cylindrical inflorescences. Distinct and elegant.

STIPA GIGANTEA.—Perennial; 3ft.; showy, extremely light inflorescences, very long-bearded. S. tortilis has curiously twisted beards. S. pennata, silky, arching, slender panicles. All are great sun lovers.

TRICHOLÆNA ROSEA.—Annual, 3ft.; beautiful light pinky inflorescences. A charming item either in a green or in a dry condition.

Inclusion must also be made among ornamental grasses, to be complete, of many utilitarian plants: millets of all classes, many of which have coloured and very graceful spikes or panicles and are very showy; numerous varieties of wheats, oats, barleys, ryes, etc., commonly cultivated for production, but having very decorative ears, bearded and unbearded, coloured or uncoloured, slender or stout.

The propagation of most of these grasses is easy. Sowing takes place in spring, in March and April, either in the ground the plants are to occupy, or in a nursery bed, or in boxes under a cold frame. In the two last cases it is necessary to transplant when the plants are large enough. For some species, that are natives of warm countries, such as panicum, coix, briza, setaria, eragrostis, etc., it is best to delay the sowing till a little later in May, when the ground has become quite warm. The only care required by these grasses during the growing period is an occasional hoeing and cleaning of the ground. C. LERAY.

THE PALE PRIMROSE

Ring-ting! I wish I were a primrose,
A bright yellow primrose blowing in the spring!
The stooping boughs above me,
The wandering bee to love me,
The fern and moss to creep across,
And the elm tree for our king!

—WM. ALLINGHAM.

IT is something of a coincidence that the day which we call Primrose Day, April 19th, should be not only kept in memory of that great statesman, Disraeli, but the day of his death was also the day of Darwin's death a year later: "Dizzy" passing in 1881, Darwin in 1882. Darwin and Knight wrote important treatises on the primrose, and its thrum-eyed and pin-eyed, or short and long styled forms, and gave us such illuminating ideas on the subject of cross-fertilisation of plants.

In mild seasons one may find the primrose out in February, but it is undoubtedly at its best in April and May.

In its colour the primrose differs from other yellow flowers so much that the name primrose has been applied to the pale yellow of this flower. Cultivated, the primrose produces flowers of various colours from white to pink, and even bright red. Really the primrose is as much a primula as the garden forms of other species which always go by the name of primula. But Primula acaulis proper is always called the primrose, while its garden colour varieties are called primulas. Others which differ from the primrose in its usual form are known as polyanthus. They differ from the ordinary form of primrose in having several flowers formed on an umbel like the cowslip, but occasionally the wild primrose produces this polyanthus form.

Milton calls it the "rathe" or early primrose, and it is very uncertain in its time of flowering. Those forms we have noticed with several flowers on one stalk are popularly known as oxlips. But they are not really oxlips, for the true oxlip grows only in certain counties—

THE DAINTY COWSLIP.

Essex, Cambridge, Herts and Suffolk—differing in the size and colour of the flower, and much more like a large cowslip without the spots. In the primrose there is a long, slender stalk, longer than that of the cowslip, and it rises deep down in the root-stock among the thick rosette of leaves. The stalked primrose is like a cowslip, with the flowers on a common stalk. In the primrose it is usually quite short immersed among the leaves. Occasionally the primrose and the cowslip hybridise, some forms being more like the cowslip, some like the primrose, others quite intermediate.

Some years ago I collected one of these hybrids in Rutland in a wood in which grew the wild columbine, the mountain St. John's wort, belladonna and many other interesting flowers. Some roots were transplanted to the garden, and after increasing were divided up. One large root was divided up into twenty smaller pieces, and used as a border to a square bed. When these roots had become established they came into flower, exhibiting, in nineteen cases, the hybrid character, in this case much like the so-called "oxlips." By this I do not mean the very large cowslips—which are merely luxuriant shade or woodland varieties with flower-stalks sometimes a foot long—but the large-flowered cowslip primrose form with flowers twice as large as the cowslip and yellower than the primrose, but unspotted. The colour was intermediate, more golden than the primrose tint, but not as yellow as the cowslip flower.

One root, the twentieth, had leaves like the cowslip, which are quite unlike primrose leaves in shape, colour and the amount of wrinkling. The flower was small and exactly like a cowslip. In fact, this twentieth root was a true cowslip. It was broken off the original hybrid cowslip-primrose root. There could be no more striking proof of the hybrid origin of the original root. It showed that the hybrid had more of the cowslip in it than the primrose, though the original plant had all the flowers when gathered like the other nineteen subdivided plants, and no trace of a normal cowslip flower or leaves. In the course of growth the old plant had developed unequally,

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and one portion of its original rootstock had thrown back, or had been untouched by the hybridising agent, which had affected the rest of the rootstock.

I know of no other instance of a hybrid exhibiting so clearly the hybrid origin and in the *vegetative* part or rootstock revealing one of the true untouched parents of the hybrid. The case is extremely interesting, as it shows that, apart from the reproductive factors, and the hybridising or crossing, and breeding on Mendelian lines with known results for each generation, one may have other methods of arriving at results by ordinary vegetative propagation. If a piece of a hybrid root can throw off one of the original parents, while retaining for the rest its hybrid characters, propagative methods may be developed to discover the origin of hybrids thought to be true species, and be used also to develop new forms by crossing alternatively with propagation by vegetative methods.

To revert to the forms of the primrose, "pin-eyed" and "thrum-eyed," it is not generally known that these terms owe their origin to the amateur cultivators of the auricula, a garden allied form or species, at Nottingham, who, using the terms familiar to them in the art of weaving, applied the name thrum-eyed to the form with five projecting anthers in which they saw likeness to the ends of the thrum, and so the other long-styled of pin-eyed form was so named because of the pin-like character.

Take a few primrose flowers from a grassy bank and it will soon be discovered that not all are alike. In some flowers, from the long tube a green pin-headed structure, the style, projects. Another flower will not have this, but instead in a ring round the mouth of the tube are shown five yellow points. These are the anthers. The style is short and half-way down the tube in this thrum-eyed form. Such a flower is dimorphic, or possesses two forms, a long and a short styled, and by visiting different forms an insect cross-pollinates them. The pollen in the short-styled form touches the insect at such a part of its body that it will come into contact with a style only in the long-styled form; and conversely the short-styled form is crossed with pollen from a long-styled form, in which the anthers are half-way down the tube, and so just at the point where the style in the short-styled form is situated. Many variations of crossing occur in such dimorphic forms. The pollen from a short-styled form is more prepotent or fertile when applied to the stigma of a long-styled form, than to a stigma of a short-styled form, and conversely. Cross-pollination was held to be more efficacious than self-pollination by Darwin, and his experiments and evidence bore out this view. But such a rule is not of universal application, and there is a more modern view that the opposite is the case. It is quite obvious that it is not essential nor that it is always beneficial, nor even possible. It is a fallacy to argue from the particular to the general. In some cleistogamic flowers, such as the violet, later-flowering forms which follow the spring flowers, cross-pollination is precluded, for the flower is closed. Some other plants seem to be best adapted to self-pollination. In the dioecious plants cross-pollination becomes a fairly certain occurrence. And in wind-pollinated trees and other plants cross-pollination is the rule. Again, the example I have given shows that vegetatively plants tend to return to type in the case of hybrids or cross-pollination between different species.

We have to depend on the choice of insect visitors in a state of Nature. But a world of possibility lies before the gardener or plant breeder.

A. R. HORWOOD.

A CLUSTER OF PALE PRIMROSES.

NATURE'S ROCK GARDEN

BY HALLIWELL SUTCLIFFE.

THERE is rather widespread belief that rock gardening is a whimsical affair, artificial in conception and practice. Some such gardens, do, indeed, suggest that their creator made up his own rules as he went along, according to the day's mood or the material that came most readily to hand. But the craftsman who builds truly and for heart's delight must have learned in one school only—nature's.

And what a school! Here in our Northern heights, lean pastures climb to the sky and the grey limestone walls rake out across the lonely places. Few voices break the stillness. A shepherd's call, his dog's brief reply—the forlorn bleating of ewes, ingathered against their will—wail of a soft-flapping curlew, or drumming of the snipe—these are your only gossips, until little by little you begin to hear what seemed the silence of the rocks.

This land is little changed since the elder days. It wore the same aspect when the first beaked ships crossed Viking seas. The cave dwellers saw it much as we see it now. The Britons, who made their last stand in the North on the hill above, knew it as we know the curling slopes, the thinly-wooded heights. Mating and birth time—laughter and wooing of the men and women who ran life's gamut, and passed—the quiet rocks are their chronicle, once you have learned their speech.

An odd thought recurs to one persistently in crossing these rock-strewn acres. That last stand of the British was only the final chapter of a long and moving tale. Their ruined camps abound, and all along this savage country there were running fights and skirmishes, year in, year out. Many of these stones must be lying where they fell

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after British warriors had rolled them on to the oncoming foe. There are times when the rocks are in a mood to talk of nothing but rude strife. In the silence of a brooding winter's dusk, for instance, you will see nothing, but will be aware of conflict, stark and terrible. You will hear no actual yells, no death-cries, except as it were from a long way off. But all is real. The stones are telling you Saga tales, and you cannot choose but listen.

One mighty boulder—we name him the Monarch of the Glen—is oftenest in this mood of joy in bloodthirstiness for its own sake. He stands alone among the sheep-cropped grass. Nobody knows how deep his feet go. His head and shoulders stand bulky and triumphant, though storm and frost and blistering heat have chiselled fissures, deep and wide, about his person. The story he loves best, among all his trenchant tales, is of a British Queen who slept one night in a near-by cave, and the next morning gave battle to the foe, leading her men to do or die for her. They died, to a man, and folk nowadays disturb their bones at times and hale them, without due trial, to some museum's prison.

The Monarch tells you how, when all was lost, the Queen came, heavy with wounds, and leaned against his scarred, trusty bulk. She told him how her men had fought—laughed once, for pride in them—and so went along the busy highway of the dead.

He is proud of his British Queen, of the men who fought rearward battles in the long and ever so long ago. He fought the dint of weather and hard circumstance long before their time; and still he's here, glad of life and of sheer tenacity to hold his own.

The Monarch of the Glen has his softer moments. They come when spring breathes warm across a wintry land, and plovers cry about their nesting places, and virile hope stirs the young sap in age-old thorns. The great weather gaps that seam the Monarch have gathered wind-blown leaves and held them till they rotted, mixing with the worn limestone scrapings; and vagrant seeds have strayed into these warm retreats. He is father, indeed, of a mixed brood, and from spring right on into the October days he is a garden in himself.

You would not look for the earliest primrose on these open heights, unless you chanced to know that in a cranny of the Monarch, on the west side, a strong clump has found protection from every wind that blows. No word can explain the young, eager mystery, the fresh, sufficing beauty of these blossoms, with grey rock for background.

Nor is it easy to tell of the rock rose's magic, later on when full-o'-the-year is flooding the thirsty land with heat. They have made one big pocket their own, and their roots, fibred into the porous stone, drink from an unfailing well. No drought can hinder their riot of bloom. The hotter the sun, the more they smile up at him as at a welcome friend.

The little white-flowered saxifrage has staked a claim all down the Monarch's eastern side — a joyous youngster that creeps every way, like a babe on the nursery floor. Its foliage alone is a year-long delight—green as if new-washed by rain a moment since — and its habit is to follow every dip and curve of the crannies, painting, but not hiding, the rock's bold features.

In this same area that I have in mind, not far from the Monarch, a rock garden of quite another type climbs the pasture till it steps, still upward, into a beguiling belt of low-growing trees and shrubs. Surface stones and deep-set rocks are intermingled, with the seeming carelessness that perfect art should have. All the bold effects are secured by proneness, and it is here that one learns—half consciously and by long companionship—how a man-made rock garden should rise and fall and undulate.

Every worker in this sort of craft knows that there are times when he cannot go wrong. His rocks seem to play themselves into place, as it were, with melodies; and in my own experience I have found that these inspired hours are apt to follow some prolonged excursion up to the rocky highlands. Observation has something to do with it, no doubt; but there is more—much more. One has breathed in the spirit of the rock world, and the subtle elixir is with one on returning.

The surprises of these wide-flung gardens lie in wait at every turn, and one is never sure what feast of colour is in store, or what lace-fronded clump of ferns, deep pocketed, will meet one unawares. Wild thyme, on the open slopes, throws its strong, ruddy mantle over the baked rocks. Farinosa, mealy, yet tenacious, makes pink wonderlands among the sober limestone grey. These are summer's children, but earlier in the year another quiet dweller in the rocks glows into full life.

I have seen cowslips in lush meadows, under wayside hedges, in all their usual haunts. But their grace is never so compelling as when they choose the gaunt rocks for harbourage. Their golden belfries, ringing home the bees, nowhere else, somehow, wear just this charm, and no breeze but the highland's entices the same fragrance out.

If rarer plants are your quest, you shall find Dryas, oak-leaved and pearly white of flower; and in one place, if sheer luck guided your feet there, you would happen on a free-blooming plant, housed between two crannied boulders, for which many a gardener would sell a year or two of life. It is named the Lady's Slipper; and I say advisedly, that luck alone can guide you to this special haunt. Not one of the few who know will ever give you help in the direction of their yearly pilgrimage.

Where this rock garden of the fells runs into the scanty woodland, a noise of running water tumbles down the steep, and presently you reach a stream that half pretends to be a torrent. A torrent it is in earnest now and then, after sudden melting of the snows above. Great rounded boulders guard its banks, or lie in mid-stream. And here you find a rock-garden distinct in its beauties and surprises from those left below you—a place where kingcups, in their season, stand waist deep in the stream and throw their spendthrift sheets of bloom abroad—a haunt of great, wide-branched male ferns, and curled brackens, and water avens, guarded by sparse hazels and feathery rowans that lean to the cool murmurs underneath.

MR. HALLIWELL SUTCLIFFE'S ROCK GARDEN IN A YORKSHIRE DALE.
From a painting by Ernest Moore.

Where can one call a halt, in this wide travelling from one rock garden to the next? The limit of one's space is reached already, and the journey scarce begun, but any journey of this kind is worth while.

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SOME ORNAMENTAL VINES

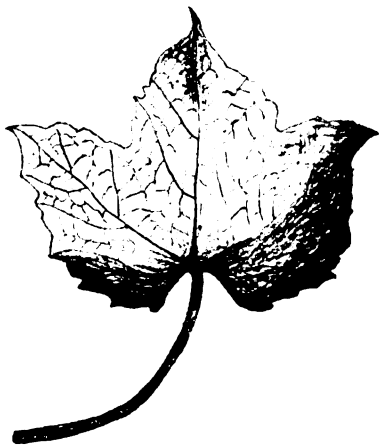
COMMON AND UNCOMMON

BROADLY speaking, "vine" is a term applicable to all plants of twining, trailing or climbing habit of growth, but it will suffice for the moment to confine our attention to such members of the genus Vitis as are grown for ornamental purposes.

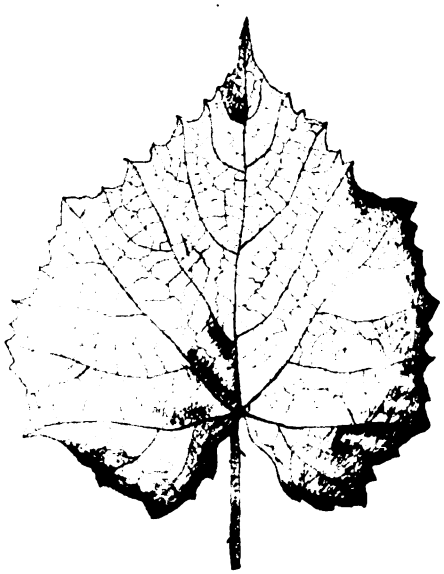
Certain species and varieties of this remarkable genus have been long cultivated in the British Isles, but it was with the dawn of the present century that we acquired such wealth of variety, charm and beauty in introductions from China, thanks largely to the successful efforts of E. H. Wilson, George Forrest and Dr. Henry, that no one who has a particle of love for beautiful plants can differ from the opinion that in this family exist some of the grandest and loveliest of nature's rich productions.

Wherever an ornamental vine is to be planted, careful attention should be given to the rooting medium. A common observation is that vines are gross feeders, but one moment's thought as to the vast area of growth and quantity of substantial foliage an established vine produces will suffice to impress the mind with the fact that the supply of nourishment must, of necessity, be liberal. Deep digging is an absolute essential: on heavy clay soils because it improves drainage, and on light, dry soils because it facilitates descent of the roots to cool, moist areas well below the surface. Of all manure, cow's is best for light soil, being substantial and lasting, while on heavy soil strawed horse manure will be better; but some natural manure is quite necessary, supplemented perhaps, but not substituted, by artificials. Of the latter, coarse bone-meal, hoof and horn shavings, dried blood and fish meal are more serviceable to vines than sodas, sulphates and the like. If a vine is to be planted near to a tree or a coarse-growing shrub, nothing less than a cubic yard of soil should be dug out, mixing the whole with manure before returning, with an allowance of a fortnight at least for settlement before planting.

As to the season of planting, if young plants from pots are to be used (and they are by far the best) spring is the best season for the choicer and perhaps more delicate varieties, because they will have the summer and autumn during which to make root and growth before facing winter. The hardier kinds may be transplanted in autumn if so desired. A very large percentage of failures might be traced to the erroneous idea that it is an advantage to start with big strong plants. A vine in a 6in. pot with three or four runners 4ft. or more in length will have its roots wound many times round the small body of soil in the pot. It would be well if planters overcame the impatient clamouring for big strong plants and sought instead small young plants as soon as they were sufficiently developed to move with safety. Failures would be reduced to a minimum, and the supposed loss of time would soon be realised to be imaginary rather than real.



ONE OF THE FORMS OF FOLIAGE OF VITIS HETEROPHYLLA.



THE HANDSOME LEAF OF V. ARMATA.

THE GRACEFUL TRIFOLIATE LEAF OF VITIS DELAVAYI.

Seldom will the purchaser of a vine which he has impressed upon the nurseryman must be a good strong plant, be persuaded to prune it before it starts to grow at all, yet that is the one time when hard pruning will be of great and permanent benefit. A plant from a pot has rods or stems which, although perhaps several feet long, are of necessity slender. It is planted, and attempts simultaneously to make new roots below ground and young growth from every joint above ground. With very small means of obtaining nourishment the large number of young shoots that break from the eyes of the slender rods are pitifully weak, and (here comes the important point) these are the shoots which should develop into the main or "trunk" branches of the vine to support and nourish all future growths. As an alternative to this let us suppose that the thin rods are cut back before sap begins to flow in early spring, leaving only two eyes at the base of each rod. The roots in the pot-ball of earth will provide sufficient nourishment to give one if not both of the retained eyes a vigorous start, and new roots forming will take up the task of drawing nourishment at a rate increasing about as rapidly as the young shoots extend, consequently maintaining unchecked a steady and strong growth. By the end of the first autumn this plant will have made three or four long, strong rods which, if evenly distributed over the widest possible area, will have laid the foundation of a thoroughly vigorous vine. The unpruned plant will only have succeeded in making a lot of thin little lateral growths which ceased development about halfway through the season, and will never be strong enough to support a big rod, probably also being too weak to withstand the rigours of a hard winter. Reverting to the plant with three or four strong rods. The proper method of pruning these during the following resting period will be to cut them back to half their length, thus encouraging the development of the lower buds, which will then break away with great vigour. Unless thus shortened, the tendency will be for the eyes at the ends (the thinnest part) of the rods to break while those of the lower and stouter half of the rods will remain dormant.

After the second year, pruning may consist chiefly of cutting away weak growths to avoid overcrowding and the removal of accidentally injured wood or of an old rod which can be replaced by a stronger young one.

Much greater benefit will accrue from careful attention at frequent intervals to little details of training than from too eager resort to surgery. There is a way of guiding and securing young growth so that even distribution is secured without the slightest evidence of the handiwork. There should not, in fact, be indication of restraint or

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measured formality, but it is an immense mistake to imagine that the way to avoid such indications is to allow the vines to grow just as they will for the whole season through; that will result in entangled masses and many strangled growths, tendrils of one rod mercilessly gripping another and preventing normal development.

Ten minutes a day and a piece of soft twine will keep a big vine in perfect order, but neglect for a couple of months may involve a few days of laborious and not very successful effort to rectify matters.

Much depends upon supports. Tree stumps, rustic poles and treillage are not difficult problems, but walls, especially house walls, require careful consideration. Nails and shreds are intolerable and hopelessly inefficient for strong-growing vines. Staples are better, but unless very large, and consequently ugly, are likely to cause trouble when main branches swell. Diamond-meshed wire work is usually made much heavier than is necessary or desirable and, all things considered, it is difficult to beat ordinary 3in. mesh wire netting stretched taut on strained cable wires. With one early tie a young growth will thread its own way through the meshes without further aid, and if the wirework is stretched horizontally in 3ft. breadths there is no necessity to have bare netting exposed to view because a strip can be added from time to time as the extending growth of the vine requires.

Highly decorative and desirable vines are so numerous that only a small selection can be briefly described here, but these include very distinct and beautiful kinds for the most part productive of rich autumn tints and, generally speaking, sufficiently hardy for the majority of gardens in England, Wales and Ireland.

VITIS ARMATA is very handsome, its foliage of large size, heart-shaped, with a long tapering point, conspicuously veined and closely corrugated. A full-grown leaf will sometimes measure 9ins. from stalk to tip and 7ins. across. The autumn tints are very bright, but the richest and most glowing colour is attained by the variety V. armata Veitchii, which becomes literally blood red. V. armata requires ample space.

THE SMALL ELEGANT LEAF OF VITIS HENRYANA, SHOWING UNDERSIDE AND VEINING.

V. COIGNETIÆ.—One of the finest of the large, heart-shaped leaved vines, very closely netted over the whole surface of the leaf, the undersides being densely coated with a felt-like tomentum. Vigorous in habit and usually bright in its autumn tints, V. Coignetiæ is more plentifully planted than many kinds.

V. HENRYANA.—Much smaller, but extremely elegant, the leaves of this species are made up of five leaflets, long-pointed, irregularly toothed and beautifully veined. The central leaflet approximates 3ins. in length, the rest being shorter. The surface of the leaf is beautifully pencilled with white lines following the course of the ribs of the leaf, and a delicate pink stain overlays some portion of the dark green of the glabrous foliage.

V. HETEROPHYLLA.—There are various forms of this vine, some having almost entire leaves, others deeply lobed and toothed. The variety V. h. humulifolia simulates the hop leaf, and there is a variegated form of this variety which is frequently grown in pots for conservatory decoration. It is satisfactory outdoors only when it can climb over a dark surface in a position well sheltered from cold winds, but the ivy-leaved type is quite hardy, and is very showy by reason of its shining red stems and neat foliage. V. h. Delavayi strikes another note, giving us a graceful trifoliate leaf, the central leaflet running to about 6ins. in length. It is broadly toothed, and hangs with a dainty elegance, the veining standing out conspicuously for so light and apparently slender a leaf.

Of VITIS FLEXUOSA several distinct varieties are now in cultivation, the type having serrated, heart-shaped leaves of small size borne on slender string-like stems. A notable feature is the length of time this vine retains its foliage, sometimes until well nigh Christmas. Good varieties are V. f. chinensis, V. f. major and V. f. Wilsoni. A. J. MACSELF.

A WANDERER'S NOTE BOOK

WILD GLADIOLUS AND CYCLAMEN.

The wild gladiolus (G. communis or G. palustris ?) chronicled from Greece is also to be found round the head of Lake Garda, but probably not in any great quantity. Where I found it it was sharing with one of the small dark blue aquilegias that are so difficult to differentiate, a grassy steep slope above the road near Storo, the Austro-Italian village from which one begins the ascent of the famous Tombéa. Cyclamen europæum, that blooms in Greece in winter, is in countless multitude and inimitable beauty all over the lower slopes of the Monte Baldo range that flanks the eastern side of Lake Garda and of the mountains of Judicaria (in which all the European primula species seem to meet and hybridise) that stretch from the now popular resort of Gardone-Riviera to the Stelvio Pass.

NATURAL HYBRIDS.

Are natural hybrids invariably easy of cultivation—relatively, that is—to the species that are their parents ? It is a tempting generalisation and one of the curiosities of Nature. The European section of the primula family, *par excellence*, have almost elevated this rather hazardous suggestion to a general principle. The most apposite and not the least illustrious example is P. Florekeana, a natural hybrid of glutinosa and minima, which is to be found in the high Monzoni-thal, a "suspended" valley well off the beaten tourist track in the Italian Dolomites, which repays in very full measure the attention of the gardener, botanist and geologist. P. minima is by universal consent not easy of cultivation. As for glutinosa, it is damned by the greatest of rock garden apostles as "not impossible but . . ."—words deterrent to the many, though doubtless an appetiser to the undaunted few, among whom Dr. Macwatt himself finds it "chary of bloom." Yet Florekeana is a free thriver. It is only fair to glutinosa to add that the same apostle bestows on it the highest praise and, apart from eulogy, glutinosa has the distinction of being the only truly blue primula (though in the Monzoni-thal, such has been the interference of minima, you are hard put to it to find many that are "truly blue"). Salisburgensis, again, another of the brilliant offspring of shy glutinosa and capricious minima, is admittedly a free-flowerer. The tale of the hybrid primulas is a long one and with few exceptions they are both easier and of clearer colour than the species. Memory off hand takes me to only one "ugly"—P. discolor, appropriately named.

CAMPANULAS LANATA AND SPECIOSA.

Campanula lanata of the Balkans is described by your Greek correspondent as of a "luminous campanula blue." It was previously given in THE GARDEN as synonymous with C. velutina, with white, yellow or purplish flowers. I have yet to find the hill campanula to which the bald epithet "purplish" does justice. The description of the species reminds one of C. speciosa from the Cevennes and Pyrenees, which Farrer called a "marvel of splendour." The relation between them, if the conjecture of relationship is correct, provides another of the frequent cases in which the elder flora of the Pyrenees jumps over the Western and Central Alps to link itself with that of the Eastern Alps and Balkans, having escaped on either side the havoc of the glacial ages out of which the comparatively "young" mountains of the central chains emerged. E. ENEVER TODD.

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A FORECAST OF THE CHELSEA SHOW

TO the lover of flowers, "Chelsea" does not mean a mere district of London, nor does it mean the famous hospital for old soldiers. It spells flowers and scents, catalogues and note-books—and, it must be confessed, crush and bewilderment. Chelsea is looked forward to with eagerness by the garden-loving public of Britain, and it draws visitors from near and far. It is the one floral show which every keen gardener, and others less keen, make a special effort to attend. This year, for five days instead of the customary three, the development and skill of the horticulturist will be demonstrated in Chelsea Hospital grounds from May 19th to May 23rd. These two extra days will enable most visitors to take full advantage of all the opportunities provided by this world-renowned exhibition.

Weather, unfortunately, plays havoc with the plans of many growers. The sun often refuses to shine just when it is most needed, and the cold, drying winds of the spring frequently do much to thwart the best-laid plans. Although it may be true that many of the flowers shown at Chelsea are grown under glass, if the weather is unkind and provides chilly and dull days it is very difficult to produce perfect specimens, and "timing," however carefully done, does not always give the wished-for results.

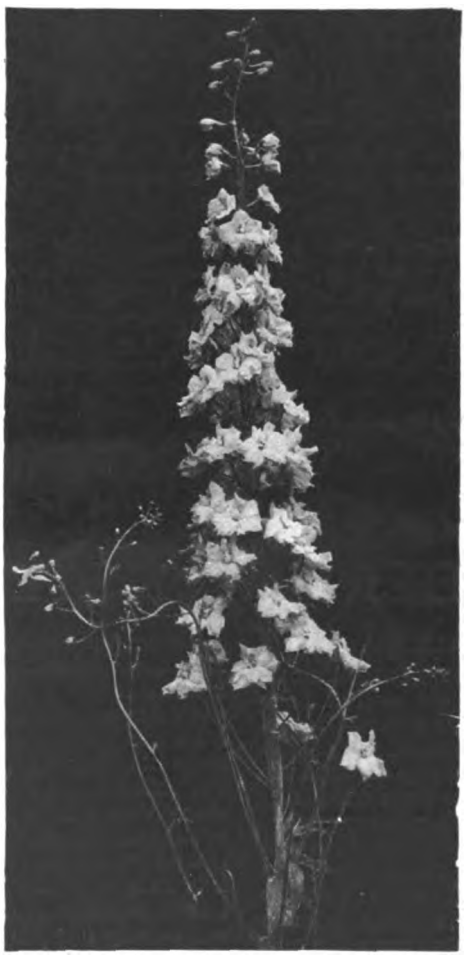
There is every prospect of a very fine Show this year, and the reader should make a point of seeing the exhibits mentioned below. It goes without saying that many others will be well worth attention, but space prevents reference to all when their number is great, if not legion. It must suffice, therefore, if we indicate a few of the exhibits which promise to be particularly interesting.

One of the great advantages of Chelsea is that its size permits of the construction and exhibition of rock and formal gardens of an appreciable size. There is a likelihood of some interesting rock and formal gardens being laid out this year.

Mr. George G. Whitelegg plans to use water-worn Yorkshire limestone in the construction of a rock garden, through which a mountain stream will run. In the little rocks and corners and in the cool water-sprayed crevices, choice alpines will be placed. On the more open spaces, saxifrages both new and rare and some lovely gentians will flourish. Other plants for the rock garden which Mr. G. Whitelegg can supply will be seen on his stand in one of the tents. There, choice alpines in bloom as well as the more ordinary will be exhibited in abundance. Mr. Whitelegg is showing among his collection of irises some of his new seedlings, which are bound to attract attention.

A display of those forms of Cupressus obtusa nana, whose neat and compact habit make them excellent backgrounds for low-growing alpines, will be made by Messrs. W. H. Rogers and Co. Cupressus obtusa tetragona minima, C. obtusa cæspitosa and C. obtusa juniperoides will be included. Among these shrubs, which will be found on a tiny rock garden constructed on one of the tables, there will be patches of primulas, such as P. helodoxa and P. Flambeau, drifts of Campanula muralis major, and groups of meconopsis, Cambrica aurantiaca plena, Iris gracilipes, Oxalis adenophylla and many another beautiful alpine.

Judging from the reputation which is possessed by Messrs. Maxwell and Beale, and from their exhibits at other shows, both the formal garden and the inside rock garden constructed by them should be very interesting. Their plans sound most attractive. In the centre of the formal garden there will be an old West



DELPHINIUM MONARCH OF WALES.

Country well. The square paved paths will be edged with lavender, and the garden will be enclosed by a low wall planted with flowering alpines. A small pool surrounded by masses of spring-flowering rock plants will be found in their inside rockery.

Whether it is wet or fine during Chelsea Week, the rockery made of Westmorland stone and constructed by Messrs. R. Tucker and Sons may be examined in comfort, for it is under cover. It will be planted with alpines, shrubs and herbaceous plants. If this firm is able to equal their gold medal exhibit of last year, it will demand notice.

The alpine specialist will make a point of visiting Mr. W. Wells' exhibit of gentians and choice alpines. If the weather is favourable before the Show, his collection will undoubtedly include some of the best forms.

Another exhibit which the lover of rare alpines should not miss is that of Messrs. Oliver and Hunter. They propose to show many of the hardy primulas, including such species as P. Forrestii, P. pulchella, P. geraniifolia, P. pinnatifida, P. pseudo-capitata and P. Littoniana, giant form. Among other alpines which they will exhibit are Omphalodes Luciliæ, Saxifraga primuloides Farrer's form, Armeria cæspitosa and Meconopsis integrifolia.

Mr. Frederick G. Wood intends to have an inside rock garden. Alpines and shrubs in great variety will adorn the rockery. Daphne Cneorum, Cytisus Beanii, Cistus formosa, and some rock conifers, such as Cupressus Fletcheri, Retinospora gracilis nana and Thuya Reingold, are a few of the shrubs which will be there. Among the alpines will be silvery saxifrages, primulas, aquilegias, Campanula Stevenii, dianthus, erinus and mimulus.

New and uncommon shrubs will be an attractive feature on the stand of Messrs. Hillier and Sons. This firm hope to show their new Cistus Hillieri for the first time. Japanese maples, wistarias, bamboos and azaleas will be well represented.

Messrs. W. H. Gaze and Sons are constructing a terraced garden, in front of which will be a sunk garden. The garden will mainly show the possibilities of treatment of grounds surrounding the house. Messrs. Gaze will also show a selection of garden ornaments.

Messrs. Bakers and Co. will have an original exhibit. It will take the form of a stream garden. Visitors who are the happy possessors of a garden through which a stream runs, or those who may wish to construct an artificial one, should be able to get from this exhibit a number of ideas. There is an art in the design and construction of a stream garden; the right introduction of water will make, the wrong will mar, the whole effect.

Messrs. Cutbush and Co., who are noted for their clipped trees, polyantha roses and azaleas, will have exhibits as varied as their reputation is high. Specimens of their cut bushes will be seen. Salmon Queen, Orange King (two dwarf polyantha roses) and Red Explorer (the new climbing polyantha which evoked much admiration at the Spring Rose Show, will be on view. Hydrangeas, including such varieties as Helge, Lorely, Maréchal Foch, etc., will be shown inside; while it can be prophesied that among the rock gardens the space allotted to Messrs. Cutbush will be attractively filled.

Messrs. J. Carter and Co. are exhibiting a formal garden again this year, and in it there will be a fountain and pool.

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Under cover of the tents they intend to show florists' flowers in plenty, cinerarias, gloxinias and begonias will be among them. Annuals will also occupy a large portion of the space allotted to this firm.

From Messrs. Barr and Sons, the firm so noted for raising first-class bulbs, one expects great things. At Chelsea, they are going to exhibit a large and varied collection of tulips, including representatives from many of the sections. In addition, they will exhibit irises, early-flowering perennials and certain alpines.

At each fortnightly show of the R.H.S. the exhibits of Messrs. Skelton and Kirby are always noticeable; and at Chelsea they hope to exhibit a similar collection of alpines and shrubs.

Shrubs of all kinds play an important part in the gardens of to-day. In some cases the demand is greater than the supply, and it is useful to know of a reliable firm who have a good stock of the more uncommon shrubs. Messrs. W. Fromow will be exhibiting a varied collection of Japanese maples, including such as Acer dissectum palmatifidum, A. japonicum aureum, A. roseum marginatum, A. Seigenii and A. involutum variegatum.

An interesting collection of rhododendrons and azaleas will be staged by the Dutch firm, Messrs. Koster and Sons.

Each year roses of all kinds are exhibited in great numbers and add to the beauties of the floral exhibits. Messrs. Frank Cant and Co. will be staging a large exhibit of many varieties, including their new seedling roses of the last three years. Among them will be Chastity, Henry Nevard, Blush Queen, Captain F. S. Harvey Cant, Prince Yugala, Snowflake and, lastly, their new pedigree seedling rose, Rosemary, the first batches of which will be ready for distribution from June onwards. Rosemary is the beautiful hybrid tea which was awarded the 100-guinea Clay Challenge Cup for the best seedling rose introduced in 1923 with a real old rose scent.

Mr. Elisha Hicks will have almost a thousand pot roses in his group. Among them there will be all the good varieties, both old and new.

Many rambler and weeping roses will be exhibited by Messrs. A. J. and C. Allen, as well as hybrid tea, hybrid perpetual and tea roses. Havering Rambler, Papa Gouchault, Fernand Rabier, Excelsa, Orange King, the new climbing polyantha Phyllis Bide, and such well known varieties as Golden Emblem, Hadley and Betty Uprichard, will be included in this firm's collection.

A few of the varieties of roses which Messrs. B. R. Cant and Sons intend to exhibit are Rev. F. Page Roberts, Padre, Covent Garden, Casson, and three of their new pedigree seedling roses, Lady Roundway and Sovereign, both pernetianas, and Lady Dixon-Hartland, a hybrid tea.

ROSE SOVEREIGN, A GOOD PERNETIANA.

ONE OF MESSRS. GAZE'S HERBACEOUS BORDERS.

Hosts of hardy flowers, such as delphiniums, lupines, peonies and irises, will be exhibited at Chelsea if the weather is warm enough to bring them on in time. Irises arranged in beds outside are an attractive feature at any show, and Messrs. Bunyard intend to exhibit irises in this way. A table of fruit will be exhibited by this leading fruit firm. On it late-keeping varieties of British apples and pears, such as Ontario, Wagener, Allen's Everlasting, Newton Wonder, Clark's Seedling, Sandling Duchess and the excellent variety Bramley's Seedling as well as many others will be displayed. This will surely cause many fruit growers to cast envious looks in the direction of Messrs. Bunyard's stand.

New varieties of single-flowered pyrethrums, hybrid tree lupines, herbaceous lupines, peonies—including herbaceous, double and single flowered—and new varieties of delphiniums will be staged by the well known firm of Messrs. Kelway and Sons.

Messrs. Blackmore and Langdon hope to exhibit delphiniums and double begonias. Many of the old as well as the new varieties will be included.

Another firm showing delphiniums is Messrs. Hewitt and Co., who will include

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in their collection the celebrated Wrexham strain of delphiniums, Dutch irises and tulips of all kinds. Among the delphiniums will be The Bishop, Coquette, Joy Bells, Monarch of Wales, and Wembley. They are choosing such irises as Hart Nibbrig, Rembrandt, Hemskirk and J. P. Seegers to exhibit.

The multi-colours of St. Brigid anemones will form a vivid patch of colour in the beds which Messrs. Reamsbottom and Co. intend to fill with these beautiful and popular flowers.

Messrs. Stuart Low and Co. will have flowers of all kinds to display before the public. The main sections can be divided into carnations, roses, greenhouse plants and orchids. Among the fifty varieties which make up the carnation group will be Sir Philip Sassoon, Lady Hindlip, Mauve Queen and Eileen Low, all of which have been seen at the recent meetings at Vincent Square. The much talked-of rose, Roselandia, and another rose novelty, called Rosamond will be there. Acacias, ericas, boronias and many other greenhouse plants will be selected by Messrs. Stuart Low and Co. to form a large group.

Messrs. Allwood Bros. plan to stage an exceedingly large exhibit of carnations of all kinds. Some novelties which they will be showing are Shot Silk, Cameron, Butterfly and Master Michael Stoop. Jane, Anne and Roger, three Allwoodii novelties, will be exhibited.

Perpetual carnations in all shades will be staged by Messrs. Keith Luxford and Co.

Messrs. C. Engelmann, Limited, are exhibiting a large group of carnations, including a number of new unnamed seedlings. Two varieties, Red Laddie and Canada, will be worth noting.

Mr. James Douglas will be exhibiting Douglas cloves and hardy border carnations and, in another group, auriculas will be seen. These fragrant clove carnations are quite hardy, and such varieties as Salmon Clove, White Clove, Bookham Clove and Queen of the Cloves, which Mr. Douglas will show, all form well shaped flowers.

Messrs. Alex. Dickson and Sons with their famous Hawlmark sweet peas, should make a striking effect at Chelsea. They are arranging them in a novel way. At the back of the stand the flowers will cover a large trellis-work, and in front Elegance, Hawlmark Pink, Powerscourt, etc., will form bold groups of contrasting colours.

Each Chelsea Show brings forth some novelties in sweet peas, and Messrs. Dobbie and Co. hope to add several more to the ever-increasing list of varieties. In tulips, too, they have a number of surprises in store for the visitor.

Bulbous flowers, such as Darwin and late-flowering tulips, irises and gladioli have been selected by Messrs. R. H. Bath, Limited, for their exhibit.

Sunshine is what Messrs. Austin and McAslan need, or else the tulips which they hope to exhibit will not be in flower in time for the Show.

Messrs. W. H. Simpson and Sons will be exhibiting many varieties of antirrhinums.

Many species of odontoglossums, miltonias, odontonias and cypripediums will comprise the exhibit of orchids staged by Messrs. Charlesworth and Co.

Messrs. Laxton Brothers are introducing three new strawberries which will be seen on their exhibit at Chelsea. The new varieties are Empress, Vicomtesse and Laxton's Rearguard.

From Perry's Hardy Plant Farm there will be an interesting collection of new and rare ferns.

Messrs. G. Jackman will be exhibiting a large group of the leading varieties of clematis.

A great variety of lupins in all shades including many recent introductions, will be staged by Mr. G. R. Downer.

Many kinds of flowering plants raised from seed will form the exhibit of Messrs. Webb and Sons. Cinerarias, including Cineraria stellata and the cactus-flowered cineraria, calceolarias, tuberous-rooted double begonias, giant hybrid schizanthus, and countless annuals in pots, will be staged by this firm.

With good weather from now onwards, Chelsea should be a most successful and interesting Show.

WALLFLOWERS

IN the scheme of what is generally known as spring bedding, wallflowers play an important part, and to have really fine bushy plants by the autumn the seeds ought to be sown during the month of May. The chief cause of failure with these delightful plants is late sowing, and although some may say July is sufficiently early, I maintain that fine examples cannot be obtained in the time, *viz.*, sturdy bushy plants in October or early November. Select an open site, and one that is not too rich. Sow the seeds thinly in drills 1ft. apart, and if the soil is dry afford the lines a thorough watering a few hours before sowing the seeds. Directly they are through the ground, use the hoe occasionally, then the seedlings will make headway.

Transplant early, before the young plants become drawn and leggy, and when they are about 2ins. high they should be set out in rows 1ft. apart, the same distance being allowed between the plants. Make the plants secure, and give a good watering; then, if the weather is favourable, no more will be needed.

During the summer months, keep down the weeds by frequent use of the hoe. When the plants become established, pinch out the centres to produce side shoots, and the beginner ought to bear in mind that no further pinching is needed. Wallflowers deserve an open situation during their growing period.

With the arrival of autumn and dull days, when the beds are cleared of their summer occupants, it gives great satisfaction to know there is a fine batch of wallflowers to draw from to fill up the void, and, moreover, the hardy, easily grown wallflower is among the best of our spring flowers.

Although there is a number of varieties to choose from, the following can be strongly recommended. For early-flowering, the various forms of Phœnix should be chosen, and, if the weather is mild, it is more or less in bloom throughout the winter. The blood-red and yellow Phœnix are both useful. Among the later flowering kinds will be found Fire King, a vivid orange, and seen at a distance the colour appears to be almost scarlet. I noticed this fact particularly last year. A suitable companion to Fire King is Orange Bedder: it is a rich orange when first open, but changes with age to apricot yellow. Cloth of Gold is a bright yellow, and when associated with Royal Blue forget-me-nots is most effective. Everyone enjoys a good strain of the Blood Red wallflower, and it is well nigh indispensable.

Primrose Monarch is a pale yellow variety and one I do not care for, and the same remark applies to Miss Willmott, described as pure bright ruby, but miserably dull when compared with the kinds quoted above.

THE SIBERIAN WALLFLOWER.

This plant, Cheiranthus Allionii, grows from 9ins. to 12ins. high, and produces flowers of a bright orange colour. It may be sown at the same time as other wallflowers, and a large patch in the border is sure to attract considerable attention. It is not met with so frequently as its merits deserve.

CHEIRANTHUS KEWENSIS.

Often described as half-hardy, this hybrid wallflower is never given any protection in the district of Chepstow, Mon., and it produces a fine display when other members of the family are over. The flowers open a pretty shade of primrose and change to mauve. With age the plants become somewhat leggy and untidy in appearance, but I find the best method is to raise seedlings annually, and dispense with the old plants after flowering. It is suitable for pot culture in a cool greenhouse.

WALLFLOWERS FROM CUTTTINGS.

A favourite of mine is the perennial old-world double wallflower, Harpur Crewe. It is a rich gold, about 12ins. high, and is very fragrant, somewhat resembling mignonette. Another single-flowered plant is Marshallii, a brilliant orange hybrid 9ins. to 12ins. high, but is not often seen in gardens. Both these plants are increased by cuttings, which will readily form roots about August if placed in sandy soil in a hand-light or cold frame. T. W. BRISCOE.

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CONSERVATORY AND GREENHOUSE

THYRSACANTHUS RUTILANS.—This beautiful plant is generally regarded as being suitable only for the stove; it, however, develops its flowers perfectly in a warm greenhouse where the night temperature is kept at about 50° Fahr., producing its long drooping racemes of red flowers during March and April. Like many other plants of this class it should be grown in a temperature of about 60° Fahr. while it is making its growth, removing it to a cooler house for flowering.

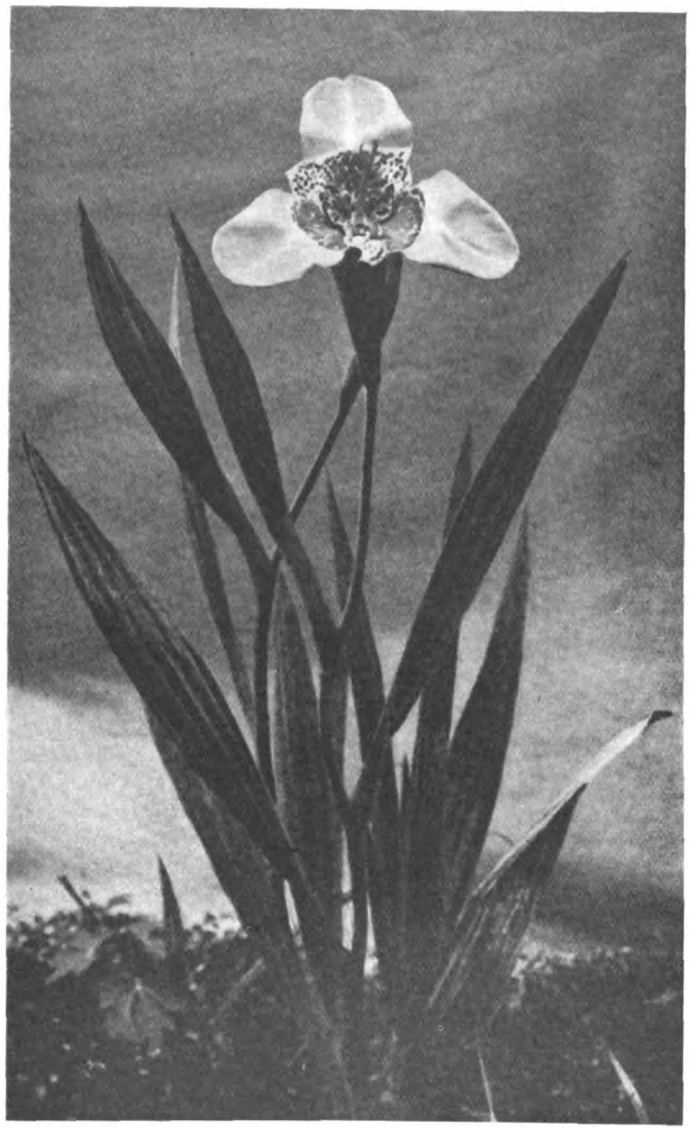
The cuttings, which root readily in a warm propagating case, are best inserted singly in small pots about the beginning of May. The young plants should not be pinched, as it is desirable that they be as tall as possible for the proper display of the long drooping inflorescences; for this reason it is desirable to grow some of the plants on for the second year. During the first year good examples can be produced in 5in. pots. The plant grows freely in a compost of good medium loam, with the addition of some leaf-soil and sand, the proportions of leaf-soil and sand varying according to the character of the loam.

TIGRIDIA PAVONIA (Mexican tiger flower), of which there are several varieties, is hardy during the summer in warm situations in the South and West; in colder parts of the country it requires the shelter of a cool house, and it is surprising that it is not more generally grown in this way. Although the flowers are very fugacious, they are produced in succession over a long period. The dry bulbs can generally be purchased during autumn and winter, and may be potted during March and April.

They grow freely in any good, well drained potting compost. Five or six bulbs should be placed in 6in. or 7in. pots; these should be placed in cold frames or in a cool greenhouse, and water should be very sparingly afforded until the bulbs have started into growth and made a quantity of roots.

ERYTHRINA CRISTA-GALLI.—This plant is very useful for conservatory decoration during the summer months. Plants that have been stored dry all winter should now be started into growth in a cool house. After getting a good soaking at the root they soon start into growth. If it is desired to increase the stock, young shoots should be secured as cuttings when they are about 3ins. to 4ins. in length. These should be cut off at the base from the old root-stock, and if inserted in light sandy soil they soon root in a close propagating case. Young stock can also be raised from seeds.

Until they are some three years old and have made a good woody root-stock, they should not be dried off too much during the winter, as they get shrivelled and fail to start into growth. Large specimens when in full flower are very handsome, with their dark red, lobster-claw-like flowers.



TIGRIDIA PAVONIA, NOTE THE TIGER'S HEAD IN THE FLOWER.

HUMEA ELEGANS should now be ready for placing in their flowering pots, which, according to the strength of the plants, may be 8ins. or 10ins. in size. This plant is generally regarded—and not without reason—as being somewhat difficult to grow successfully. Provided it is grown perfectly cool it should give little or no trouble in its younger stages; but, unless care be exercised during the final potting, trouble may be expected at this stage. Water should be carefully afforded at the root until the plants have got a good hold of the fresh compost.

Humeas are subject to attacks of green and white fly; they are also very susceptible to injury from fumigation and the use of insecticides but I find they suffer no injury from fumigation with hydrocyanic acid gas, using ¼oz. of sodium cyanide per 1,000 cubic ft. Of course, the safety factor depends very largely on the plants being fairly dry at the root, and also on the house being at the proper temperature.

LISIANTHUS RUSSELLIANUS.—This handsome plant, like many others belonging to the natural order Gentianeæ, has the reputation of being one of the most difficult plants to cultivate successfully. It is, however, so beautiful that it is well worth some extra trouble with a view to bringing it to perfection.

It is quite easily raised from seed, which is very fine and should be covered with just a sprinkling of sand. The seed pot should be covered with a piece of glass and be kept shaded until germination takes place. Most cultivators when dealing with this plant make the mistake of sowing it too early. Seed is best sown about the middle of May, the aim being to get a sturdy rosette of leaves developed before winter. If sown too early, the plants will probably make an attempt to flower during the autumn and thus weaken the plants for next year.

They are best wintered in a small house or pit in a temperature of 45° to 50° Fahr., watering them very carefully at all times. Having got them safely over the winter, and when they have started to make fresh growth in early spring, they should be placed in their flowering pots, which may be 5in. or 6in. according to the size of the plants. The compost should consist of good medium mellow loam, with the addition of some fibrous peat or flaky leaf-soil, and enough sand and some charcoal to keep the whole open and porous. Water must be very carefully afforded at all times. This plant is also somewhat subject to attacks from thrips, which must be guarded against.

LOBELIA TENUIOR is very useful for greenhouse decoration during summer and autumn. For this purpose successional batches should be sown in a temperature of about 50° Fahr. When fit to handle, the young seedlings should be pricked off into small pots, putting four or five plants in a pot. As it becomes necessary they should be potted on until they are in their flowering pots.

J. COUTTS.

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RHODODENDRONS AT VINCENT SQUARE

CONSIDERING the backward season, the collections of rhododendron blooms which constituted the main section of the Show at Vincent Square on May 5th and 6th were remarkably fine. This is one of the few plants in the showing of which amateurs predominate, and well they may, for it is mostly owing to the enthusiasm of a small and select band of amateurs that the rhododendron has achieved its present popularity. Apart from the criticism about the number of hybrids, which is dealt with in this week's Editorial, the only fault that could be found with the exhibits was that in many cases they were overcrowded owing to shortage of space. This made the picking out of individual plants a matter of some difficulty—that and the general excellence of the exhibits.

Mr. Lowinsky year by year stages a wonderful show of his fine hybrids, many of which are only suitable for indoor cultivation. This successful hybridiser has now achieved such a general degree of excellence that it is next to impossible to pick out a plant which excels its neighbour. In our opinion, however, the finest plant in his exhibit was R. Wightii, an old Himalayan species with creamy yellow bell-shaped flowers, blotched with deep crimson at the base. Undoubtedly Mr. Lowinsky possesses the best form in cultivation.

Lady Aberconway and the Hon. Harry MacLaren exhibited a fine representative collection of many of the best species and hybrids in cultivation, among them Thomsoni × Kewense, which is of a finer and deeper shade of rose than the commoner Thomsoni × Fortunei. On either end of this exhibit were fine vases of R. Augustinii of a good shade of blue-lilac, and R. Benthamianum, a purple triflorum from Szechuan and, for some reason or another, a rare plant in cultivation.

Mr. Lionel de Rothschild's exhibit was most noticeable for the big vase of R. Loderi which grows so well at Exbury. Probably every gardener will envy him for his form of R. campanulatum, Knap Hill variety, for which he obtained an award of merit. This is the cream of all campanulatums, with its rich lilac blooms. Another fine hybrid was to be seen on this stand—R. Thomsoni × Mangles Scarlet; this is far darker than the ordinary R. Thomsoni and has the rich appearance of a ripe plum.

Lieut.-Colonel Messel showed species and hybrids of excellent quality, among them a fine old pink arboreum called No. 1, which is the parent of many of the arboreum hybrids now in existence, and also a fine form of white arboreum. This exhibit was noticeable for the fine vases of Acacia verticillata. This was grown in a cool house, and is, without a doubt, one of the finest subjects for indoor decoration that we possess.

Mr. E. J. P. Magor's exhibit was noticeable for the finest blooms of R. Augustinii at the Show. This rhododendron is most variable in colour, but without a doubt Mr. Magor possesses one of the best forms in cultivation. It is as near blue as any rhododendron, and has a cool tint about it that is charming. He also showed R. salwenense, a dwarf with large open purple flowers that will look particularly well planted in a mass in the rock garden.

Among the many rhododendrons on Colonel Stephenson Clarke's stand was a hybrid of Griffithianum and campylocarpum, aptly named Pelican. This had a large shapely truss of cream-tinted flowers with crimson at the base spreading up the throat. This is a fine hybrid, and it is hoped that it will be distributed in time. It was also pleasant to see Ivory's Scarlet, an old favourite and still one of the best reds in the garden.

Sir John Ramsden showed many fine species and hybrids, among them the Duchess of Portland, very old but probably the best white hybrid in cultivation; and Gloriana, a very fine red cross between campylocarpum and barbatum. In the original cross there are few signs of campylocarpum, but seedlings of this plant are showing a distinct throwback to campylocarpum, which only proves the difficulty of guessing at the parentage of hybrids.

THE DEEP CRIMSON FLOWERS OF R. SPERABILE (FARRER 888).

Mr. Gerald Loder staged a most interesting collection of species and a few hybrids. Among the most noticeable were R. diphrocalyx, a red rhododendron with a split and most uneven calyx of the same shade as the petals, and a rhododendron named argyrophyllum. This rhododendron usually flowers in March and has a more decided tomentum on the undersurface of the leaf, but whatever it may be, it was distinctly attractive with bell-shaped trusses of a good pink.

Among the trade, Mr. Reuthe showed his usual fine assortment of hybrids and species, mostly hardy. Messrs. Gill, on the other hand, staged species and hybrids most of which will only grow out of doors in the mild West. Two of these are noticed in the plants which obtained awards.

Among Messrs. Veitch's stand of hybrids and species was a vase of Cunningham's Sulphur, that all-yellow rhododendron with caucasicum blood in it that was so nearly lost to cultivation a few years ago. It is pleasant to hear that this fine plant is again on the market in quantity. Messrs. C. B. van Nes of Boskoop showed several of their famous strain of hardy hybrids which are among the best in cultivation, among them The Unknown Warrior, a fine deep rose. They also staged an azalea which is noticed among the awards.

An interesting group, composed entirely of a new strain of Primula pulverulenta, was exhibited by Mr. G. H. Dalrymple. He was showing P. pulverulenta Lady Thursby and P. pulverulenta pink seedlings, both of which have been raised by him. P. pulverulenta Lady Thursby is not a hybrid. It is a true P. pulverulenta. The flowers are a soft, crushed strawberry pink, and are borne in three or four whorls on thick, stiff stems. The seedlings of P. pulverulenta were very similar, but the flowers were paler in colour, and some had a slightly darker eye.

The most brilliant picture among the alpines was a great drift of gentianella, shown by Clarence Elliott, round a solitary mountain of grey limestone, capped with a snowy patch of a very large-flowered and vigorous form of Androsace arachnoidea. At the foot of the mountain on the north side were a few plants of the rare Gentiana pyrenaica, with deep-throated little flowers of rich violet blue, which have been recently described in THE GARDEN. Dotted about in the sea of gentians was Sisyrinchium filifolium, which shows off its silky white flowers with their delicate purple veining by carrying them nearly upright, instead of dangling them like S. grandiflorum, and is easily the finest of its family, though at present the rarest. Mr. Wells, Junr., demonstrated this in another way, by showing a few clumps of his form of gentianella (obtained many years ago from an old garden), which were covered with buds and flowers.

Maurice Prichard showed several very interesting plants; Arenaria verna, a rare native that is not very showy, but makes a close turf, spangled with little white flowers, that serves as a perfect background for other small plants that like company; Haberlea virginalis, the white form, H. Rhodopensis, whose cold, alabaster flowers are even more exquisite than the lavender gloxinias of the type; Anemone sylvestris Baikalensis, a beautiful plant with a doubtful name, that seems identical with the large, free-flowering form of A. sylvestris, in the large creamy white flowers, with their tassel of soft yellow stamens in the centre.

Mr. Frederick Wood showed a vigorous form of Primula chionantha, whose tiers of white flowers, touched with grey and green about the calyx, stood out interestingly against the dusty purple background of a group of Muscari paradoxus; the white variety of Viola cucullata, with fine solid flowers, set off by neat black whiskers and a good form of the Hose-in-Hose cowslip from Ireland, named Erin's Gem, in which each of the flowers is almost completely reduplicated.

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W. Wells, Junr., showed the double Marsh Marigold, a quaintly formal, old-fashioned flower that associates well with the double Lady's Smock; Linaria æquitriloba the microscopic snapdragon, and the rich golden saucers of Geum montanum.

Messrs. Bakers of Wolverhampton exhibited some unusual primulas; P. anisodora, which is very nearly ugly, with black buds and mahogany-coloured flowers, but made an amusing contrast with the prim innocence of Ranunculus amplexicaulis: Primula secundiflora, whose large drooping bells, deep pink outside and purplish crimson inside, are covered with a grey bloom.

Tucker and Sons of Oxford showed Ranunculus Seguieri, the beautiful white equivalent on the limestone of R. glacialis.

Among other exhibits were the following:

ANEMONES.—Messrs. R. Gill and Sons and Reamsbottom and Co.

CARNATIONS.—Messrs. Allwood Bros., C. Engelmann and Stuart Low and Co.

CLEMATIS.—Messrs. L. R. Russell and Co.

DAHLIAS.—Messrs. J. Cheal and Sons.

GREENHOUSE PLANTS.—Messrs. L. R. Russell and Co. and Stuart Low and Co.

HYDRANGEAS.—Messrs. R. and C. Cuthbert.

NARCISSI.—Messrs. Barr and Sons, J. W. Barr and R. H. Bath.

PELARGONIUMS.—Messrs. Jarman and Co.

POLYANTHUS.—Messrs. John and A. H. Crook and G. A. Miller.

ROSES.—Messrs. Benj. R. Cant and Sons, Elisha Hicks and J. H. Pemberton.

SHRUBS.—Messrs. Cheal and Sons and R. C. Notcutt.

SHRUBS AND ALPINES.—Carter Page, K. and E. Hopkins, B. Ladham, Skelton and Kirby, W. H. Rogers, Waterers.

TULIPS.—Messrs. Barr and Sons and R. H. Bath.

VIOLAS.—Messrs. Carter Page and Jarman and Co.

AN INTERESTING GROUP OF PRIMULA PULVERULENTA LADY THURSBY.

NEW AND RARE PLANTS.

AZALEA HOLLANDIA, a hardy seedling azalea, Hinodegiri × Kæmpferi, showing obvious signs of its parentage. Good rose and brick red colours and very floriferous. A fine addition to our hardy azaleas. Award of merit. Messrs. C. B. van Nes, Boskoop, Holland.

RHODODENDRON WILLIAM WATSON, foliage light green, flowers whitish pink in colour, petals spreading, about 3ins. in diameter; Aucklandii blood. Award of merit. R. Gill and Son, Falmouth.

R. TEYSMANII.—A species found in Sumatra, with good foliage, slightly hairy, but no tomentum; flowers are like a large javanicum, three to a truss, white, 4ins. in diameter, and a tube 4ins. long. Should be a valuable addition to our hot-house rhododendrons. First-class certificate. Messrs. R. Gill and Son, Falmouth.

R. DOROTHEA.—A hybrid, carrying a good truss of flowers 4–5ins. across, of a delicate pale pink shade, with slight spotting on petals and pink deepening in tone towards the edge. Foliage long, of a pale dull green. Award of merit. Mr. T. H. Lowinsky, Sunninghill.

R. SPERABILE (Farrer 888).—A species which grows to about 6ft. in height. Whole plant is hairy, and the undersurface of the leaves is very woolly. It carries a good close truss of a fine shade of deep crimson. A valuable acquisition. Award of merit. Mr. L. de Rothschild, Southampton.

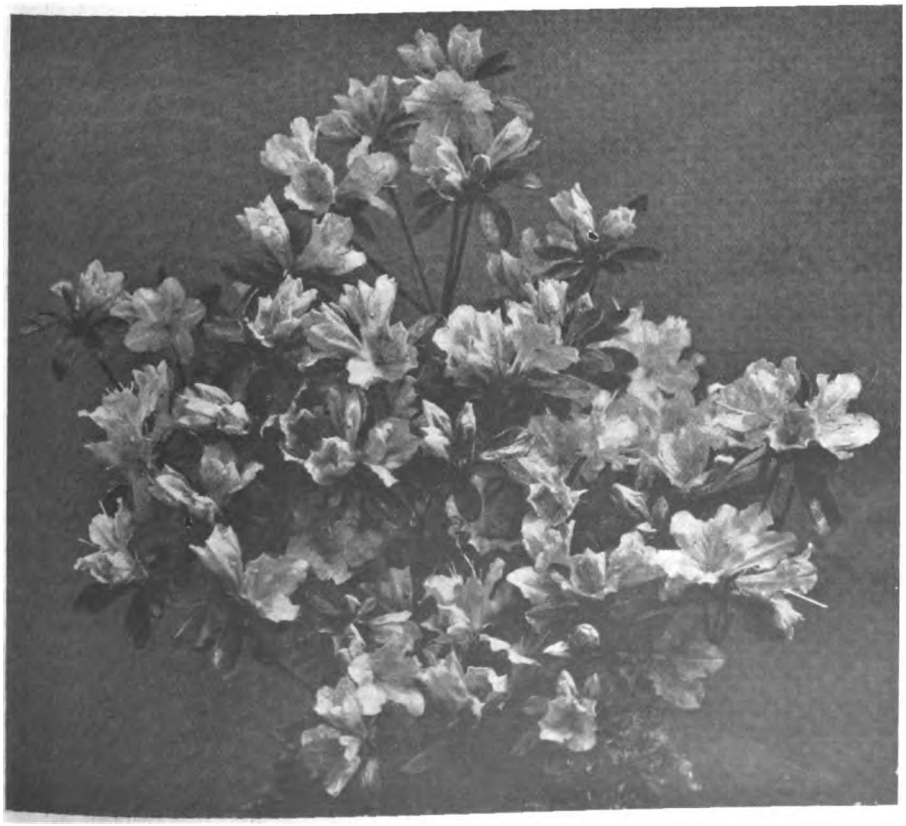
R. CAMPANULATUM KNAP HILL VAR.—A very fine campanulatum, carrying loose trusses of bluish-lilac flowers blotched at the base and with spots on the petals of a deep wine colour. Award of merit. Mr. L. de Rothschild, Southampton.

ACER PSEUDO-PLATANUS VAR. BRILLIANTISSIMUM.—This is one of the many varieties of the common sycamore. It is, however, an exceedingly handsome one, as was seen by the branches shown, bearing leaves of a beautiful pinkish to coppery hue on unfolding. In addition, the foliage has a pleasant sheen which is decidedly characteristic. Shown by the Hon. Vicary Gibbs, Aldenham, Elstree.

RETINOSPORA PLUMOSA NANA COMPRESSA.—This variety has arisen as a sport from the type species Retinospora plumosa. It forms a dwarf, dense, bushy plant more or less conical in shape. The branches are crowded and even overlapping. The leaves are soft and awl-shaped, and are glaucous green in colour It forms an excellent little pot plant and should prove admirable for out-of-door decoration, as it is absolutely hardy. Award of merit. Shown by Messrs. C. B. van Nes, Boskoop, Holland.

ROSE SYLVIA.—Another useful hybrid tea variety to be added to our ever increasing list. It is well supplied with long, good stems bearing large dull green leaves. The blooms are large, of good shape in all stages of growth, and are rose-pink in colour, with a slight fragrance. It is a variety which should prove popular in the garden. Award of merit. Shown by Mr. Walter Stevens, Hoddesdon.

ANEMONE HORTENSIS BLUE GOWN.—This is a charming and dainty variety of hortensis, bearing large double flowers of a lilac-blue



A FINE HARDY SEEDLING AZALEA, A. HOLLANDIA (A. HINODEGIRI A. KÆMPFERI).

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colour on stems from 6–8ins. high. The colour is good and the form of the bloom perfect. It is a variety which should be cultivated with ease and success in warm dry borders or in rock gardens.

SENECIO BEAUTY OF CAMBRIDGE.—A really fine variety forming an excellent pot plant for indoor decoration, reaching almost 2ft. in height and bearing numerous flowers from 1–1½ins. across. In colour the petals are white with a tinge of blue at the tips. The foliage is also good, and provides a pleasant contrast. Award of merit. Shown by The Director, Botanic Gardens, Cambridge.

NARCISSUS MOROCCO.—This is a handsome Barrii variety with a white perianth. The blooms are large, of perfect shape and substance, and are carried well on long stems. The cupped corona is of a fiery orange shade tinged with red. Award of merit. Shown by Messrs. Herbert Chapman, Limited, Rye.

NARCISSUS MRS. JOHN ROBINSON.—An excellent Poeticus variety with well formed and regular blooms with a white perianth, while the cupped corona is deep yellow margined with orange. The flowers are also well carried on long erect stems. Award of merit. Shown by Mr. John Robinson, Kingswood, Bawtry, Yorks.

ORCHIDS.

ODONTOGLOSSUM WHITE ADMIRAL.—Although of unrecorded parentage, this fine acquisition partakes much of the habit of a grand form of Odontoglossum crispum, the labellum being practically the only segment in which hybrid origin can be detected, and this suggesting that O. Pescatorei has been used in its making. The spike bore ten large flowers, with all the segments broadly developed and of unusually thick texture. The only colour is a slight rose tinge on the two lateral sepals, and a rich crimson-coloured blotch on the labellum near the apex of the crest. First-class certificate. Exhibited by Lieut.-Colonel Sir George Holford, K.C.V.O., Westonbirt, Tetbury, Glos.

MILTONIA PRINCESS MARY, STAMPERLAND VARIETY (M. Hyeana × M. Bleuana var. Reine Elisabeth).—This pleasing hybrid carried a spike of five large flowers, the sepals flushed with crimson-rose, the petals to a much deeper tone, the labellum bears a brownish mask on its basal area. Award of merit. Shown by Mr. Robert Paterson, Stamperland, Cathcart, Glasgow.

ODONTOGLOSSUM ELDORADO (eximium × Lakinæ).—A showy hybrid with a spike of seven large flowers, fleshy in character, and with the segments symmetrically marked with reddish brown, the labellum has a spiny crest of yellow colour. Award of merit. From Messrs. Stuart Low and Co., Jarvisbrook, Sussex.

ODONTOGLOSSUM FABIA VAR. SIR CHRISTOPHER WREN (Aglaon × eximium).—A useful addition to the red section, the present example having a spike of eight moderate-sized flowers of crimson-red colour, a very narrow white margin to all the segments adding to its attraction. Award of merit. Shown by Mr. J. J. Bolton, Claygate, Surrey.

SOPHRO-LÆLIO-CATTLEYA ST. GOTHARD (Sophronitis grandiflora × L.-C. St. Gothard).—A remarkable result in which the influence of the former parent is strongly visible. Although not of large size, the colour is blood red, equally suffused throughout all the segments, thus showing a marked improvement on previous hybrids in this section. Award of merit. Exhibited by Mr. J. J. Bolton, Claygate, Surrey.

EULOPHIA STREPTOPETALA.—Two vigorous specimens of this species from British East Africa were shown by Mr. Wm. Van de Weyer, Clyffe House, Dorchester. The tall and erect spikes each bore upwards of thirty flowers and buds, the rich yellow colour of the petals and labellum being the attractive feature. Cultural commendation.

THE AURICULA SHOW

THE annual show of the Southern Section of the National Primula and Auricula Society, which was held in conjunction with the R.H.S. meeting, was a very small affair, and had the exhibits of Mr. James Douglas been absent there would have been so little left that it could easily have been overlooked altogether.

It seems a pity that the old time interest in auriculas appears to be moribund, because they are very beautiful flowers and deserving of a much wider cultivation. True, the show varieties are somewhat difficult and hard to please, but success with them amply repays the necessary care and attention.

The twelve alpines for which Mr. Douglas was awarded the first prize included Day Dream, Angus, Roxburgh, Hector, The Laird, Purple Alpine and Admiration, and these were a good selection of the different colours. His dozen fancies were also of high quality and a representative selection would include Bronze 3 X, May Day, Pale Yellow, Prospero, Agnes, Maize and King of the Yellows.

The best six, in the first section, were shown by Mr. J. Stanbridge, Tottenham, while Mr. Ed. Heron-Allen, Selsey Hill, had the next four, and was also first with six alpines in the tyro's class, with highly creditable plants. Mr. J. T. Bennett Poe, had the best six alpines, and Mrs. Groves was first with four, and with six in the small growers' class.

Premier cards were awarded to Mr. Douglas for Green Parrot, a striking green-edged show variety, and to May Day, a most lovely rosy lilac Fancy. With Phyllis Douglas, a large purple flower with a velvety maroon sheen, Mrs. Groves won the alpine card.

Mr. G. W. Miller was the only exhibitor of primroses and polyanthuses, along with auriculas, and was awarded all the first prizes.

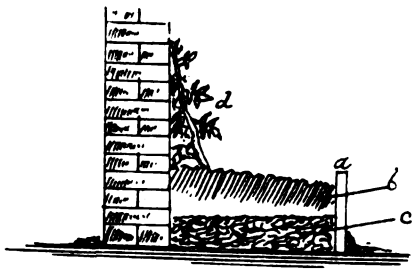
SIMPLE GARDENING

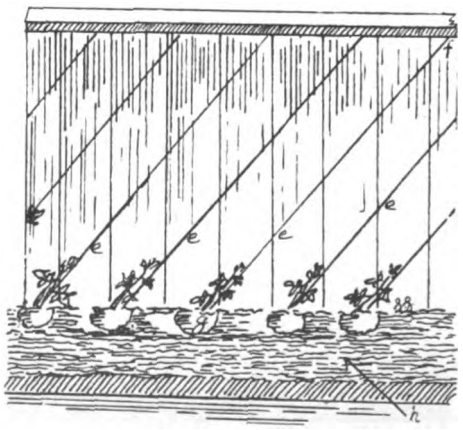
GLOXINIAS.

IN days long gone these plants were subjected to rather high temperatures; in fact, they were treated almost throughout their growing stages as stove subjects. Many amateurs are still under the impression that great heat is necessary to their successful cultivation; and, not possessing the means to provide such artificial heat, they do not attempt to grow the plants. There need not be any hesitation in the matter. Although it is not advisable to grow the plants in cold frames generally, I may say I have seen splendid batches of them in frames during the summer months. Young plants, raised from seeds sown in February, will flower from mid-August to early October; and bulbs started in a gentle heat at the same time will begin flowering early in June; thus we have, by growing both kinds of plants, flowers from June to October. The seedlings like a light loam, porous, with a tiny addition of peat or leaf-soil. At the final potting some well rotted manure will do a lot of good. Rotted manure and bone-meal may be included in the compost for the bulbs except in that in which they were started. At present the ideal position for the plants is one on a bed of ashes on a stage in a greenhouse.

PLANTING TOMATOES OUTSIDE.

This note and the sketches are intended to be helpful to those persons who wish





to grow a few plants outside and have not had any previous experience or who possess poor accommodation for the purpose. In many back gardens and also in small villa gardens there are fences or walls suitable for training the plants on, but not any borders. In such positions, nice, strong plants will, with ordinary care, yield a good average crop of fruit. The plants are not safe from frost outside before the second week in June, unless some temporary protection can be given. In the meantime, the soil should be prepared—good, fibrous, lumpy loam, a small quantity of leaf-soil and a handful of bone-meal to each bushel. Place 9in. boards on edge, or bricks, slates or tiles, shown at *a*, 18ins. from the wall; *b*, finer compost; *c*, roughest parts; *d*, the plants which should be 9ins. or 1ft. high and sturdy. On low fences, train the plants, *e*, *e*, *e*, as shown from *f* to *g*; the border prepared being shown at *h*.

ROSES UNDER GLASS.

We all love roses and are eager to grow plants that will bear blooms as early and as late as possible. It is seldom that the amateur can spare a house solely for roses, so that he decides to plant one or more in a greenhouse or conservatory which contains a miscellaneous collection of plants. My first experience of roses under glass was of Souvenir d'un Ami and Maréchal Niel. One specimen of the first-named, planted thirty years ago, still occupies the same position and flowers—moderately now—

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every year. The chief difficulty met with is that of affording the plants proper treatment after the spring-flowering stage is passed. A thorough syringing with clear water does good, and also the admission of as much air as possible. When the new summer shoots begin to grow, cold draughts must be avoided or mildew will spread rapidly. Over-dryness of soil is harmful, as is also a too sodden state. Danger of the former exists when the border is small and in a warm position; the latter when the roots permeate soil under stages. Where possible, it is better to have the roots in outside borders. The mildew fungus may be kept under control by the judicious use of soft soap and sulphur or "Abol." Fumigation will keep down green aphides.

RE-POTTING TREE CARNATIONS.

The final re-potting of these plants will claim the attention of lovers of the flowers. To my knowledge, inexperienced cultivators subject the plants either to too much heat or expose them to a too low temperature. After the plants are well established in 5in. pots there should not be any undue delay in shifting them to the final ones, 6½ins. or 7½ins. across. Larger pots for single plants are not desirable. From the third week in June to the end of August, amateur cultivators would manage their plants better on a bed of ashes in a sheltered position outside than in a greenhouse. Good fibrous loam in which all grass has been dead at least one month should form the body of the compost. Take a bushel of loam as a guide; add to it a 6in. potful of leaf-soil, a 3in. potful of bone-meal, a 5in. potful of wood ashes and a similar quantity of well pounded bricks—old ones reduced to small bits—and a very good compost will be available. Before potting work is done the soil in the smaller ones should be examined and watered at least one hour before re-potting. It is not wise to shift the plants to larger pots while the soil is very dry or in a sodden condition. After potting the plants, place them under glass again and spray the foliage, but do not water the soil for one or two days; then fill up the pots with clear water and afterwards when it is required, so that the roots do not get too dry. Wait until the pots are fairly well filled with roots before applying stimulants.

GEORGE GARNER.

NOTES FROM CONTRIBUTORS

PRIMULA WINTERI.

ALTHOUGH it is a good number of years since this charming Himalayan primrose was first introduced to cultivation, it is surprising it is not more often met with in different gardens throughout the country. This lovely plant inhabits the higher Alps and was discovered at an elevation of 12,000ft. It is therefore hardy in most parts of this country, in spite of our changeable climate. To grow it successfully in the rock garden, select a cool northern position, which must be thoroughly drained. The compost may consist of 2 parts of fibrous loam and 1 part each of leaf-soil and sand, with the addition of a little lime rubble (which the majority of primulas enjoy).

In districts where the rainfall is excessive, abundance of gritty sand must be used in the mixture, and especially round the collar of the plants. Unfortunately, the flowers of this alpine gem are often spoiled out of doors, flowering as it does during February and March. Should this be the case, it may be grown in pots or pans in a cold greenhouse or frame. It is an ideal subject for this purpose, and the flowers usually develop to perfection, as shown in the illustration. They are about the size of the common wild primrose, but are of a most beautiful delicate lavender-blue shade, with distinct zone of white round the conspicuous yellow eye, the edges of the petals being sharply serrated. The whole plant is freely powdered with white farina, which enhances the lovely colouring of the flowers to perfection. During the summer, plants that are grown in pots or pans are greatly improved by being plunged in ashes out of doors, and shaded during the hottest part of the day and liberally supplied with water. In the autumn they should be transferred to the cold frame or greenhouse again.

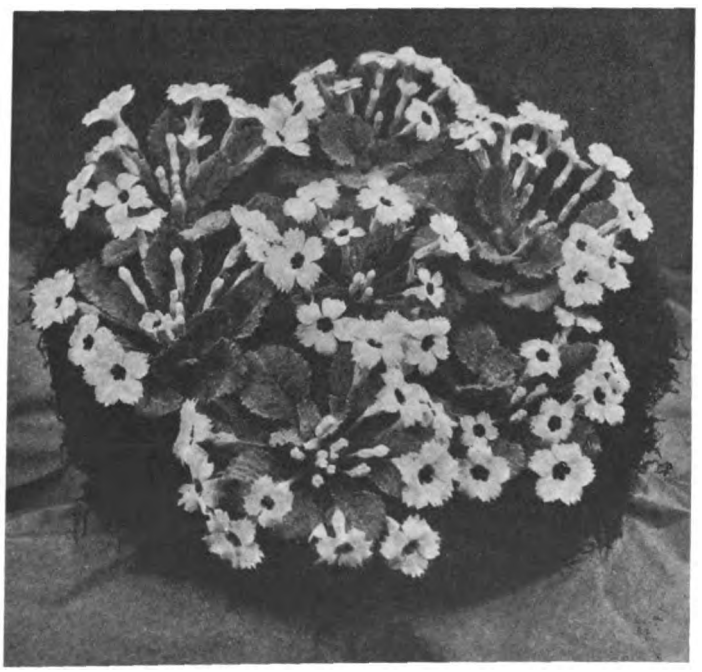
Primula Winteri is increased by seed when procurable, but appears to be a shy bearer in cultivation. It may also be divided when the plants show two or three crowns; this method may be done shortly after flowering, employing the same mixture of soil as already recommended for the rock garden. This charming species is worth any amount of trouble, due attention should be given to those small details.—GLENCAIRN.

ICELAND POPPIES.

THE Iceland poppy is not difficult to rear from seed, which may be sown in the early spring where required to grow, and afterwards thinning out the seedlings to 6ins. apart. Or seeds may be sown in August in shallow pans or boxes filled three parts with fibrous loam, one part leaf-mould, and half-part silver sand; the whole should be sifted finely. The seed should be sown thinly, and covered slightly with fine mould, then placed in a shady frame, and, when the seedlings can be handled, transplanted into boxes 3ins. apart in similar soil, wintered in a cold frame, and planted out in April.

It is almost impossible to describe adequately the exquisite beauty of the Iceland poppy (Papaver nudicaule), with its beautifully crinkled and fluted petals surrounding a charming centre of pollen-laden anthers, and emitting a perfume of the sweetest description, so that wherever offered the blooms always command a good price. The colours range from the purest white to the deepest red, and the intermediate shades are legion; moreover, the beauty is shown to the greatest advantage by the fact that the stems are of a good length—up to 2ft.—and the blossoms poppy-like, droop upon the tall stalks in a very artistic fashion, making the flowers very valuable for cutting purposes.

A trade may also be done in the raising of plants, for these poppies are somewhat difficult to keep from year to year, and are best treated as biennials. It is best, as a rule, to sow in the open where the plants are to remain, and thin them out to the required distance apart, either for sale or for growing on to obtain cut flowers; and the cultivator who shows skill in raising a quantity of plants will reap a good harvest of profit. —R. D.



AN IDEAL PRIMULA FOR THE ALPINE HOUSE, P. WINTERI.

BABIANA STRICTA RUBRO CYANEA.

FEW will dispute the claim I make for this lovely and uncommon plant to be the flower of the flock. I had a letter recently from my good friend Mr. William Mauger of Guernsey in which he said, "I do wish you were here to see my batch of Babiana rubro-cyanea, which as I write is in full blow." I do indeed. If one thing would tempt me into an aeroplane, it would be the endeavour to catch such a sight before the sun went down. The soft medium blue flowers with their bright carmine centres need the kiss of a warm sun before they will open. The little bulbs planted rather thickly—say six to eight in a 5in. pot—make a fine show here in the west Midlands. What must a larger number in the sunnier and more genial climate of Guernsey be like? The sight is a bit of refined gloriousness; or a subdued—yet not subdued—brilliance. I called the plant uncommon in my opening sentence. It is quite correct to do so. How many private gardens have it? In how many bulb lists is it offered for sale? Yet it is quite easy to cultivate. With me it takes pot luck among the freesias. It shares their soil and lives happily among them during the whole cycle of its active life. The only difference that is made between them is that the babiana is given the warmest berth in the houses. It likes this little attention. One more fact in its favour. Half a dozen, well treated, soon increase into a nice little stock.

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I may add that the illustration in Nicholson's Dictionary is misleading. I would not know my plant from it.—JOSEPH JACOB.

THE PRONUNCIATION OF BOTANICAL LATIN.

A RECENT paragraph in THE GARDEN discussed the genitive terminations in *i* and *ii*. I understand that an International Botanical Congress has laid down a ruling about them. When the name to be Latinised ends in a consonant, *ii* is added, except when the name ends in *er*, when *i* only is added. When the name ends in a vowel, *i* only is added, except when it ends in *a*, when *e* is added (so forming another genitive termination—the *æ* diphthong).

In the paragraph referred to, an objection was made to the *y* in *Henryus* (As the *y* in the English *Henry* stands for a vowel, I presume the "Latin" genitive will be *Henryi*—as from *Henryus;* not *Henryii*—as from *Henryius*.) but I think it need not trouble us. True, Latin had no *y* on its own native account, but only used it in copying Greek words; but why then may we not use it, if suitable, in copying English words? They are non-native enough (*Henryus* is !). We, at any rate, have put our *y* for the Latin *y* (or the original Greek *u*) in scores of words. Olympus, Odysseus, hyacinth, polyanthus, are instances.

Thinking of these matters, one is led to ask whether something might not be done for the better pronunciation of botanical Latin. Latin botanical names have become a necessary and an everyday part of gardening; some of them, perhaps, are used as often by the gardener as by the professor of botany. As it is, we run the risk of hearing three or four varying pronunciations of the same Latin word. It would be pleasant, if it is practicable, to lessen the danger.

The best—indeed, the only—way is to get the right pronunciation—as right, that is, as the English pronunciation of Latin allows. This means that we must treat botanical "dog-Latin" quite seriously, and very much as though it were real, good Latin. Is it worth while?

I think that it is worth while, because (1) as just said, it is the only means of securing uniformity in pronunciation, and (2) it is nothing like so difficult, even for the ordinary gardener, as people seem to suppose. It is "the ordinary gardener," let me say, whom I have in view, all the time. I believe that many gardeners and lovers of gardens would be only too glad of some clear guidance to the right pronunciation, if they could but get it.

What seems to be wanted is a little pronouncing dictionary of a special kind. It should be quite a small pocket volume, also quite small in price. It might, I imagine, be compiled in some part from existing dictionaries. It should contain the Latin names in alphabetical order. Only names of plants still "in commerce" would, I think, be needed. The length of each Latin syllable—short, long, or "long by position" (the "quantities," as they are called)—should be clearly marked; and there should be a separate mark for "long by position," quite distinct from the mark for the long vowel. (There is at present no such separate mark in use, but there ought to be.) The accent—the principal accent—should be marked for each word. If any eccentric foreign name (*e.g.*, some Polish one) had to go in, a phonetic "pronunciation re-spelling" should be given. And it would be very desirable to give the English meaning of the "real" Latin words (or Greek words in a Latin dress)—*e.g.*, *arenarius*, "pertaining to sand"; *microphylla*, "small-leaved." Finally, the type, the markings for length of syllable and for accent, etc., should be very clear. The user, it should be kept in mind, is possibly more at home with a spade than with a dictionary.

If the gardener looked up any Latin name herein, a glance at the "quantities" and the place of the accent would give him the pronunciation. Even if it came a bit strange for the first week or so, he would soon accustom himself to it. But, further, in front of the pronouncing dictionary, I think there ought to be some two or three pages of "Introductory Explanation." Here, the matter of "long by position" should be clearly explained—not merely stated—say, with an English, as well as a Latin, illustration. The Latin rules for the accent should be given. A few lines might go to these genitives in *i* and *ii*, or in *æ*; and perhaps a word be said about the pronunciation of the final short *e* in neuters like *affine*. And the nominative case of some four Latin adjectives might be cited, so that the different terminations for the masculine, feminine and neuter could be seen.

To the working gardener this may sound quite foreign, more or less difficult, and, therefore, uninviting. But it is not so; at least, it is not difficult. He is not being asked to learn Latin, or anything of the kind, but only to make himself familiar with a simple matter or two connected with the pronunciation of Latin. Let me emphasise this strongly. Any mystery there may be about the things just enumerated is more in their names than in the things themselves. Of such an Introductory Explanation, if its two or three pages were clearly and carefully done, he could get a general mastery in a few hours; allowing for consideration of novel ideas, and so on, let us put it at a dozen hours. To a small but helpful extent, he would then have an idea of the "why and wherefore," instead of taking it all "blindfold" from the dictionary part. The function of the Explanation part is to turn what might otherwise (to him) be senseless, dead enigmas into real, living, understandable things.

Opinions may differ as to the usefulness of the Explanation part, but I think few would deny the desirability, and in fact the positive need, of the Pronouncing part. Messrs. Barr and Sons, in the flower seeds section of their "Seed Guide," give the place of the accent. Anyone turning to the section can see what a help this is, and, incidentally, how important a part the accent plays; and I think the thanks of the gardening world are once more due to Messrs. Barr. But the length of the syllables ought to be given in detail. If this Pronouncing Dictionary were done, any nurseryman, at the trouble of copying them, could give both length and accent in his list, and all should be asked to do so. If the dictionary were also in use at Kew, and other places where gardeners are trained, pronunciation "accidents" might gradually decline.—C. F. GRAY, *Bournville*.

HONESTY.

WHAT we are apt to consider a common flower in the garden in the summer alongside other, admittedly beautiful, blossoms—Honesty—has an added value in dull winter days. The flowers which kept it company in the borders, faded in autumn were uprooted together with the pod-laden plants of this old and simple thing. These were trimmed and the shimmering silvery pods which held the seeds, now in vases before us, are a reminder of the worth of an old-time biennial. Lunaria biennis has its good qualities as a garden flower, but it is of course for its lasting propensities as an "everlasting" that we esteem it most. Somehow, many people, who would be glad of it for winter, forget that it is a biennial, that seed needs to be sown in the early summer for blooming the following year. It is oftener found in the country garden amid old-fashioned things like rosemary and lavender, orange and gold calendulas, Brompton stocks and Canterbury bells, than in more pretentious gardens. —W. LINDERS LEA.

GARDENS OPEN TO THE PUBLIC.

By permission of Lady Loder the Leonardslee Gardens at Horsham will be open on Wednesday, Thursday and Saturday, May 20th, 21st and 23rd from 12 noon to 7 p.m., on behalf of the Sussex Hospitals. Admission 1s. It may be pointed out that these are the only days on which the gardens will be open to the public.

By permission of Dame Alice Godman, D.B.E., the gardens at South Lodge, Lower Beeding, Horsham, will be open on Thursday and Saturday, May 28th and 30th from 11 a.m. to 6.30. p.m. Entrance 1s.

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A BLAZE OF AZALEAS BY THE WATERSIDE AT LEONARDSLEE. THESE ARE AMONG THE BEST SHRUBS FOR THE WOODLAND.

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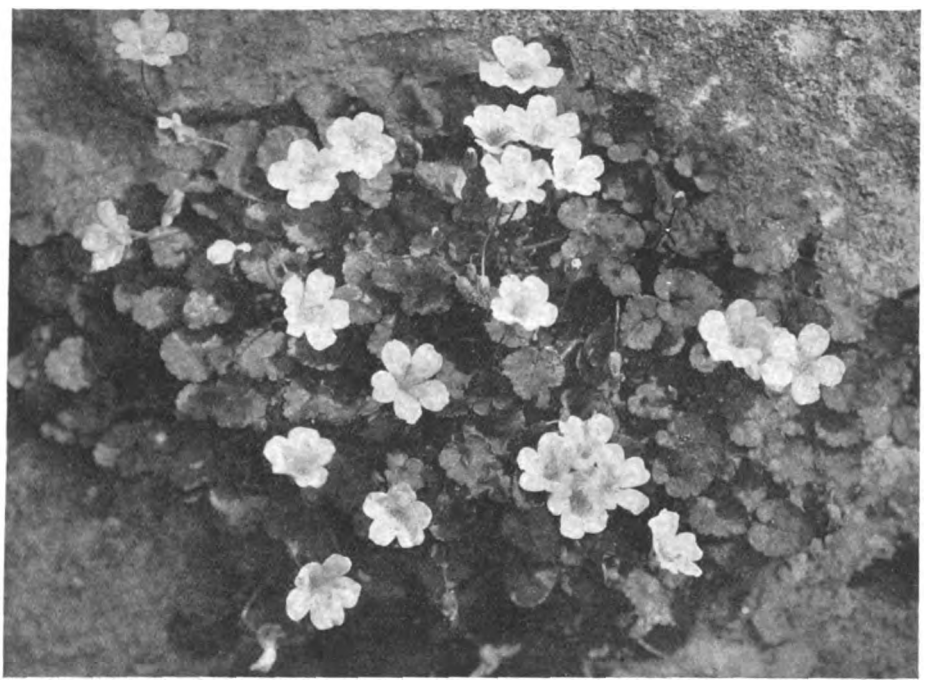
THE POPULARITY OF ROCK PLANTS

THIS ARTICLE DESCRIBES A FEW SUBJECTS WHICH SHOULD BE USED AS THE FOUNDATION OF ALL COLLECTIONS OF ROCK PLANTS.

IT is not my intention, certainly not my desire, here to invoke a flood of correspondence as to what plants should be included in the "best dozen" or "best hundred," for this or that purpose. Also I hope to steer clear of comparisons, which are often not less odious in the garden than elsewhere. But there are a number of plants which stand out pre-eminently among their fellows, plants which have now made their way and hold their positions as established front-rankers, not only on account of their peculiar beauty of form or colour, but also because of their ease of culture and adaptability to any average conditions. They are everybody's plants, the indispensables, yet often enough but feebly represented in gardens whose owners are spending their precious time, energy and money on subjects which, if not less worthy, certainly yield smaller dividends in all that a garden means.

Viola gracilis I would place high up in any list of plants that matter, for its elfish grace is as sweet as its temper. You cannot play with comparisons in the presence of this unrivalled gem, and it so happens that we have growing along with V. gracilis, another first-rate subject, Arenaria montana var grandiflora, which riots in masses of milk-white amid the deep satiny purple of countless white-eyed viola blooms. There is refinement and loveliness as well as bold contrast in that informal array. There is also that realisation of permanence which is an item of hardly less importance in the stock-pot of garden happiness.



ERODIUM CHAMÆDRYOIDES IS ALWAYS A FAVOURITE.

AUBRIETIA IS THE MOST USEFUL PLANT IN THE ROCK GARDEN.

I do not know whether a taste in aubrietias is liable to place one beyond the pale in the eyes of the alpine purist—whether people who value their reputations are ever seen associating with herbs of such plebeian blood. Howbeit, to be candid, I must own up to a profound admiration for many of these abounding crucifers whose names, even of special favourites, I refrain from mentioning, partly because most of them I have forgotten. In alpine phloxes two or three well known kinds claim mention here. P. subulata vars. nivalis and G. F. Wilson (lilacina), will always fill the front seats in the best of company, and then there is a compact, mat-forming variety whose close-set, moss-like foliage is studded with little round flowers in the coolest lilac. This, I believe, is happily titled Fairy. It is a gem of the first water, as incomparable in its own way as the adorable Vivid.

Geranium lancastriense is a rock plant of the very highest merit, yet how seldom does one see its rose-pink, delicately-veined flowers adorning the ledges of the average rock garden. If a trifle florid, G. Prichardii is a comparatively new thing which is rapidly establishing itself among these indispensables, the silver touch of Traversii in its foliage being sufficient to rescue it from that vulgarity which the fierce splendour of its blossoms might inflict. Though I am tempted to add several more geraniums to this list, the mere mention of G. sanguineum alba must suffice.

Potentilla nepalensis Willmottæ, so brilliant in cherry-red, gold, and jet, so willing and neat in habit, might claim a foremost place in this list. Geum Borisii must also be squeezed in, and in flaxes a large number of claimants has to be reduced to two, viz., Linum arboreum and L. narbonense. Æthionema Warley Rose, positively dazzling in the intensity of its rose-carmine, stands a long way ahead of any other of its race, an ideal rock garden plant of the utmost loveliness.

Erodium chamædryoides has won the affection of everyone who knows it, its simple charm and sweet temper together having raised it to the distinction of being a "treasure," a position that even its lovely rose-pink sister will never be

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able to usurp. Into the region of campanulas I hesitate to enter for obvious reasons, but among the better known ones the ever-delightful C. pumila, in one or other of its exquisite varieties, and any good form of C. Portenschlagiana must always rank high in any selection of this kind. C. garganica W. H. Paine, C. Profusion and C. Haylodgensis comprise a trio of well tried favourites that one can never be without and never need be for all are plants which anyone can grow to perfection.

Erysimum linifolium must always be included among the standard rock plants, and the milk-white Hutchinsia alpina has not, I think, a rival in subjects suited to its purpose. Again, where bolder masses of purest white are desired, can anything excel Iberis corifolia or a good form of I. sempervirens? These have never been surpassed, or, indeed, equalled; in their own way, and in their own sphere, and in colour they hold the same relative position that Alyssum saxatile holds among golden yellow subjects of like size and habit.

Viola cornuta in all its varieties is an old thing of sterling merit, whose excellent qualities we are sometimes apt to over-look these days, and another "stayer" among these bigger things is the double-flowered Arabis albida. In spite of their tendency in some places to develop habits a little too healthy, Helichrysum bellidioides and the double-flowered Cardamine pratensis, are both invaluable plants which need fear no rivals, and I would like to include here, as the easiest and most beautiful among the best of its class, Omphalodes cappadocica.

Lithospermum prostratum, var. Heavenly Blue, cannot be omitted and, bearing in mind that at least half my points are being awarded for general garden merit and usefulness, Saxifraga Wallacei stands head and shoulders above a host of others of its kind. So would I more willingly part with many a gallant Pompadour or Red Admiral than have to lose those neat and close-set mats of S. moschata atropurpurea, or Stormouth's variety of the same thing. For similar reasons I often have a friendlier eye for the frosty-grey cushions of S. valdensis, or the bristling, limy rosettes of such good tempered creatures as the more familiar Aizoons and one or two of those better known, medium sized members of the Cotyledon or pyramidalis set, than I have for the more troublesome, if perhaps more distinguished, scions of this enchanting race. In its own way Veronica prostrata (Teucrium dubia) is unique, a plant which in all-round usefulness stands alone among its kindred, while its beauty is beyond comparison. The golden-leaved form, var. Trehane, with china-blue flowers, might be bracketed with the above, for it also holds a place of notable distinction. These two, with V. gentianoides to make a third, belong to that goodly company of invaluables which time does not wither nor custom stale, yet not a few of us seem scarcely to realise it.

A. T. JOHNSON.

THE ELFIN GRACE OF VIOLA GRACILIS MAKES IT INDISPENSABLE.

JOHN RICHARD ANDERSON, J.P

HIS GARDEN DIARY, 1745. A NOTE BY THE HAND OF DION CLAYTON CALTHROP.

YOU must, if you please, keep this picture in your mind. There is a fire in Mr. Anderson's study owing to a hint of frost in the air, just enough frost to cause the logs to burn blue flame now and again. He is a man of about fifty with a face of classic mould, a Roman face not uncommon in England. His coat is wide-skirted and his wig is a bob major, ruffles of fine lace adorn his wrists and his neckcloth is from Ypres. By him on the hearthrug lies his pointer, Don, his nose on his paws, his mind in wet turnip fields where is a covey of partridges.

On a large table lie two books of manuscript neatly written in the Italian hand: the one closed is Mr. Anderson's "Bee Book," in which he has just noted "By this time your Bees sit; keep them close Night and Morning." The open book is his "Garden Book," in which he keeps notes of his parterre and garden, together with garden lore. He notes such things as the origin of the name of the Jerusalem artichoke, which is Italian and a corruption of gir a sole, to turn to the sun; and alongside he notes that the heliotrope does likewise, but is so called from the Greek: helio tropos.

"I favour the old names," he writes, "and I am pleased my gardener, James Spalding, should use them. Though in other ways he is a silent man he talks to children, animals and flowers. Yesternoon he told me five names for the Pansy to which I did add a sixth, Pensé for a thought, yet he would have none of it. Herb Trinity he calls them, and Three Faces under a Hood, and Love in Idleness, Stepmother, and Hearts Ease. A peasant will make his Poetry out of the Earth however hard times may be. It is from him my housekeeper has the knowledge to knit stockings of three colours in wool learnt from a pedlar out of Scotland, who gave him also the country name of Venice Mallow, which is 'Goodnight at Noon.' A pretty conceit and true."

Mr. Anderson's spelling is not all it might be, and he likes a flourish to his capital letters, but he is a true countryman and can find his way by the stars and knows the use of simples, and grows all manner of wild things in his garden in a wilderness he keeps. Here he will have celandine and shepherd's purse, sauce alone and rocket, which he calls dame's violet; and he grows balsam, which is touch-me-not; and here also are penny cress and traveller's joy, which is old man's beard or lady's bower.

He hesitates whether to put down "The Cure for a Cough" in his Bee Book or among his Garden Notes. Finally he decides for the Garden Notes.

Told me by Mrs. Crocker (æt. 81) To ease a troublesome cough.

Syrup of Horehound	1 oz.
,, ,, Poppies	1 oz.
,, ,, Squills	1 oz.
Clarified Honey	1 oz.

Two teaspoonfuls to be taken on going to roost, and rising, in a teacupful of warm water, or during the day if the cough be troublesome.

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Among Mr. Anderson's notes are many such entries as these, cures for toothache, a mixture called "Live Long," "To make Durable Ink," "To Pot Mussels," etc. Here is one for the preparation of "Lavendar Water":

One quart of the purest rectified spirits of wine.
Two oz. of the best oil of Lavendar. (The English extract.)
Two oz. of Bergamot.
Four grains of Musk, if liked.
Half an oz. of the essence of Ambergis.

To be mixed all together and kept well corked in a warm place and repeatedly to be shaken up. It will be fit for use in a month, but if kept a year is much better. (Note. Excellent good. J. R. A.)

We may make sure that all the good man's linen lies in lavender, and that his bowls are full of pot-pourri.

Outside in his garden room, which knows the scent of tobacco and iced punch well enough, we can see him take a survey of his red-walled property with its well ordered walks all box edged, the kitchen herbs out of sight in a garden of their own, the bees humming as they work, the rooks cawing in the elms, the sound of shears as they clip the yew hedge. It is permissible here for Mr. Anderson to divest himself of his wig and wear but a silk scarf to hide his shaven head.

Mr. Anderson, as one can see from his Garden Diary, has little use for the town. "There is not," he writes, "a pair of Red Heels to be seen within ten miles of London. We have no place for them here be they on the shoes of Rakes or Dappers, Pretty Fellows or Politicians. And I wonder if I should care to see Phœbus self in Petticoats parading on the lawn. Your Beauty plucks at flowers so carelessly even to cull herself a Nosegay that she nip off the head of a rose take one sniff at it & throw it away. As for Sir Pertinax Hatton, the fellow when he paid me a visit poked about my flowers with his cane as if they grew of themselves without tending quoting meanwhile some rubbishy verses on the Dullness of the Country. 'Stap me!' the puppy said. 'I protest you are all mould here.' (Note: I gave him some French Claret which had gone a little sour telling him it was of the finest which he declared to be so. And it was good enough for any Jack-a-napes even though his father be My Lord Judge and what-not."

I read further and find great rest and refreshment in the record of this country gentlem[illegible]'s peaceful and orderly life, and I quote here another note [illegible] his:

Came yesterday a great lumbering [illegible] low out of the Fens in the neighbourhood of Whaplode, a regular Gaby in a smocked frock. I was reading Juvenal when Polly, the maid, told me one Samuel wished to speak to me. Anon came this raw countryman twisting at his smock and grinning like a dead sheep. It seemed he claimed a right of coarse fishing in certain Drains as we call them and brought for his payment of fee a hare (which he swore he had found) some golden plover and an old bone box, very dirty, which he told me he had fished up.

I told him he was no better than a Poacher, at which he burst forth into lamentations as said he had been proclaimed as such, but if fish would come to his hook and hares die by his feet and plover flew in at his window what was a man to do. I rated him soundly and told him he was a bad case and that the law was made to see to such persons as he, after which I bade the maids to give him bacon and ale having called them by whistling which is a habit I have.

(Note: To cook golden plover. Captain James recipe.)

(Note: To keep flies out of your rooms in Summer place on the Sills pots of Sweet scented Musk which they utterly abhor so Miss D. L. told me, as also to place India Muslin over your outdoor meat safe against Blue-bottles.)

Mixed with these notes are Thoughts on Religion, all of the kindly charitable character which breathes through this country gentleman and flavours all his meditations. There are bird notes also, as

April 8th. The first swallow doth appear to grace the sky, anon will come plenty and as pretty a sight as winter dimmed eyes could wish for. Sea Gulls come far inland betokening foul weather at sea. They come into my garden and will eat a mess of toast keeping away the lesser birds all but the Starlings who thieve pieces from them.

April 12th. I have a thrush who works for me in my garden breaking snails upon a stone afterwards eating them and then giving praise to God from the topmost bough of a tree.

May 2nd. Come a sweet little maid to see me with a basket of eggs from my friend Lady Sarah Thorpe. Gave her a kiss and some comfits. The pretty Innocence of children is a Delight to the Heart.

I will leave these notes now and continue later with such cullings as may interest my readers.

THE FLOWERING DOGWOODS

BY E. H. WILSON (*Arnold Arboretum*).

IN the woods and copses of the Eastern United States there is no more lovely tree than the Flowering Dogwood (Cornus florida), the envy and despair of English gardeners. There is no more strikingly handsome flowering tree in the temperate forest of the Northern Hemisphere than the wonderful C. Nuttallii of western North America, sometimes eighty feet tall, with white chalices 6ins. to 9ins. across, so abundant as to drape the crown, and the tree stands out in the spring a gigantic surplice, in the autumn a flaming pillar in the dark forests of Vancouver Island. The bunchberries (C. canadensis and C. suecica), the diminutive brothers of these remarkable trees, are not one whit less lovely nestling on rocks and starring with white the floor of our northern forests. These dogwoods, or cornels, with two Asiatic relatives form a characteristic group in which the flower-clusters are guarded and surrounded by large, handsome white bracts. In this group the conspicuous bracts are the floral feature and the tiny flowers agglomerated into a central button-like mass may be ignored.

To those familiar with the woodlands of eastern North America from Massachusetts southward, any description of the flowering dogwood is unnecessary, but less fortunate folk are entitled to consideration. This dogwood is a slender tree from 15ft. to 40ft. tall, common as an understory in thin mixed woods of

CORNUS FLORIDA GROWING WILD ON THE MARGINS OF WOODS IN NEW ENGLAND.

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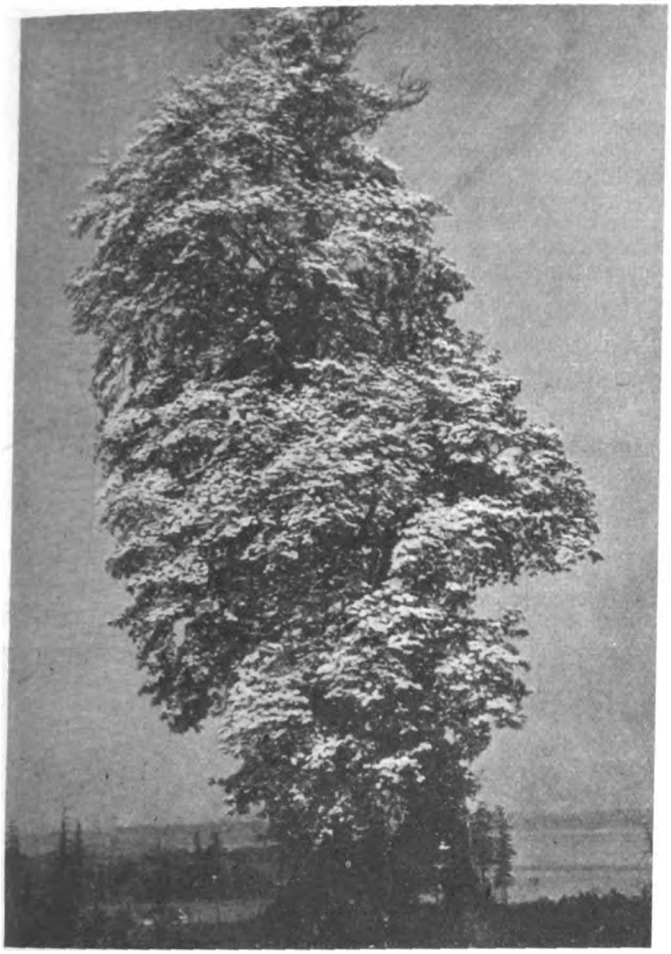

A SEVENTY FOOT TREE OF CORNUS NUTTALLII ON VANCOUVER ISLAND.

deciduous-leafed trees and has a thin airy crown, flattened and often in tiers. If examined in the autumn or winter the branches will be found to be dotted with grey, rounded studs. As spring advances these swell and expand into a cross of bracts, snow-white, from 4ins. to 6ins. across at maturity, becoming stained with pink as they age and fall. So freely are the white crosses produced that the woodlands in May when viewed from vantage points are filled with seemingly floating drifts of purest white suggesting droves of white butterflies hovering and flitting amid the trees. The story of the winter's severity in New England is told by the degree of perfection of the floral bracts of C. florida, and its brilliantly tinted red to crimson passing to pink foliage ushers in the glory of autumn.

Not every year is this dogwood full of flowers. The trees are apt to overdo themselves and need an off year to recuperate and often, especially in Massachusetts, the winter frost may be so severe as to cripple or destroy the flowers. But in good seasons, such for instance as the spring of 1924, the blossoming of C. florida is an event to be classed among the floral spectacles of the world. Visitors from other lands are captivated by its beauty and yearn to possess it. One spring, it was that of 1913 if memory serves me rightly, it was my privilege to walk round the Arnold Arboretum with Sir Herbert Maxwell, distinguished by his many accomplishments and none more so than the charm of his writings on plants and gardens. Said Sir Herbert with a sigh at the close of our peregrinations, "Give me your dogwood, the rest you may keep!" But he knew full well this was impossible for since 1730 this dogwood has been known in England where efforts to grow it successfully are unavailing. Here and there a flowering specimen is known, but insufficient summer heat more than the changeful spring weather is the cause of its failure under English skies. Its exquisite autumn coloured foliage has been spoken of, but its fruit is worthy of praise. Teat-like and clustered several together, scarlet and erect it stands jewelling the branches in the fall.

The variety rubra with rosy red bracts is in great demand though to my mind less lovely than the type. But rightly placed, say on a slope above a pond and viewed across the waters in which its flowers are reflected, it is wondrously beautiful. Close inspection of the flowers is apt to lower the high opinion thus formed since it will be seen that the bracts are only too often more or less malformed. It is claimed that all the plants in cultivation have originated by vegetative propagation (mainly by grafting) from one individual discovered about 1880.

The related C. Nuttallii of Vancouver Island and south to California is a much larger tree, sometimes 80ft. high, with a heavier, elongated crown and with heads of bracts from 6ins. to 9ins. across, expanding with the leaves, similar autumn tints and equally brilliant scarlet fruits. Fortunately, this tree of marvellous beauty can be grown in the South of England where its needs are understood. It flowers freely at Kew though there is scarce a hope of its emulating its pristine glories.

These North American dogwoods have their counterparts in Eastern Asia, where two species grow wild from the central Himalayas eastward through China and Korea to Japan, but with these differences. The fruit is a conglomerate strawberry-like head and the flower-bracts unfold after the leaves expand. They are small to moderate-sized, flat-topped trees. That of the Himalayas and southern and western China (C. capitata), is known as the Strawberry-tree. It has pale yellow, passing to cream-coloured bracts and rather thick, leathery leaves which assume no marked autumn tints. Naturally it is tender and suited only to the climate of the Cornish Riviera and equally warm climates. The other species (C. kousa), distributed from Central China north-eastward through Korea and much of Japan, however, flourishes in England and is also perfectly hardy in Boston, Mass. In the Arnold Arboretum its flowers are of greater bud hardiness than the native C. florida and in consequence it is an even more valuable garden plant. It has this advantage in winter that its flower buds, though formed in the autumn, are folded within a pair of ordinary foliage leaves and have therefore additional protection. C. kousa does not flower until mid-June or later and its upstanding heads on rigid slender stalks have a foil of rich green leaves below. Thus, though these dogwoods of North America and the Orient are close relatives, they are very dissimilar as garden plants and blossoming at different seasons there is

ONE OF THE FINEST OF ALL FLOWERING SHRUBS, CORNUS KOUSA CHINENSIS.

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room for both and no necessity for invidious comparisons. The floral heads of C. kousa are abundantly produced, from 5ins. to 6ins. across and last for more than a month and finally become pink before they fall. The form from Japan to which the specific name belongs has been sparingly in cultivation in the west since about 1860. The Central China type (var. chinensis) it has been my privilege and good fortune to add to gardens. In this the bracts are larger and broader and often overlap to form a closed, flattened involucre around the button-like mass of real flowers. Some experts acclaim this the finest gift of China to western gardens. Certainly it ranks high in the realm of beauty among hardy flowering trees and its fortunate introducer is proud of the opinion its merits have won for it. In the not distant future this Chinese dogwood will be in great demand.

The red strawberry-like fruits of the Oriental dogwoods are from ½in. to ¾in. in diameter and very attractive in the autumn suspended among the vari-tinted, often vinous purple, foliage. They are edible and the orange-coloured, sweetish pulp is quite palatable, though in it are imbedded several large, hard, stony seeds.

It would seem a far cry of relationship from trees 30ft. to 80ft. tall to lowly herbs a few inches high. But a glance at the flowers shows that it is very close between the bunchberries of North America (C. canadensis), of Europe and Northern Asia (C. suecica), and the flowering dogwoods. For shaded rockeries, woodlands and sheltered nooks there are no prettier little plants than these bunchberries, howbeit rather coy of naturalisation unless they find soil and situation to their liking.

(Photographs by permission of the Arnold Arboretum.)

FLOWERS OF TO-DAY AND TO-MORROW

A DISCUSSION OF THE VARIOUS ASSETS THAT GO TOWARDS MAKING SOME PLANTS UNDOUBTED FAVOURITES

A PERENNIAL subject of discussion among gardeners involves the reasons which underlie changes of gardening fashion, and, especially, the "ins and outs" of popularity of different plants. The *style* of our gardens is necessarily influenced a good deal by the architectural character of our homes; and the way in which we lay out our gardens will, naturally, affect the kinds of material we use to adorn them. The formal parterre called for plants of little individuality, but which would give massed colour effects; the modern wild garden demands the use of kinds suited in appearance to the environment and able, if not to naturalise themselves, at least to hold their own in a plant association consisting very largely of native "weeds." Of late years, wild gardens and gardens largely composed of native plants have been coming to the fore, indicating a change of fashion on the part of certain garden lovers.

We can thus place a finger very quickly on one cause of changing flower fashions, and another and more potent cause is not very far to seek. A new "break" in any flower readily amenable to cultivation at once arouses interest, and, should the "break" prove the forerunner of a steady progressive improvement, interest develops into enthusiasm, and something in the nature of a boom sets in. Once this condition is reached, enthusiasm is likely to be maintained or even increased until the periodical improvements become noticeably less important and ultimately dwindle to insignificance.

GODETIAS, WHICH OF LATE YEARS HAVE ATTAINED A LARGE MEASURE OF POPULARITY, ARE EXCELLENT FOR MASS PLANTING.

THE CASE OF THE SWEET PEA.

Let us consider the case of the sweet pea, which, though still largely grown as a decorative climbing annual, has lost the prominent place in gardening politics which it held but a very few years ago. The late Silas Cole noted and isolated a "freak" plant with flowers all showing greatly enlarged and wavy standards, and it was found possible to perpetuate this very elegant "freak" from seed. The waved standard, by interbreeding, was produced on flowers of various tones of colour, and year by year quite new departures were exhibited. Interest in the flower quickened and, with it, better cultivation became the rule and the possibilities of the flower came to be realised. As the range of colouring extended, moreover, folk began to talk of the possibility of golden yellow and sky blue varieties materialising. There seemed, indeed, to be almost boundless scope for improvement, and the sweet pea rapidly became a "rage." After a time, however, and when every tone of colour and every hue previously known in the flower had been produced in flowers showing a wavy standard, and the pure yellow and sky blue varieties were still as far off as ever, it became obvious that the cycle of improvement had almost run itself out, and interest rapidly fell away. This is hardly the place to discuss the why and the wherefore of this full-stop to progress, but the fact should be noted that, barring a natural "sport," often due to what biologists call the "dropping of a factor," there is a very finite limit to what can be produced by the hybridisation of any particular group of species, and, when once that limit is reached, only the introduction of entirely fresh "blood" can prepare the way for further advance.

The story of the rise, fall and rehabilitation of the dahlia follows the same lines, but in this case the way of advance was definitely baulked by the old-time florists, who were unwilling to let the plant demonstrate its inborn powers of evolution. Every seedling which was found wanting as a show or fancy variety (or, later, as a "cactus") was ruthlessly doomed to the bonfire. The last word was said—for a time—and the dahlia faded out of popularity. But, later on, in the hands of raisers with more catholic tastes, it has taken a higher place than ever in the esteem of gardeners. And this because the newer introductions are admirable for border decoration as growing and equally desirable as cut flowers for indoor

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decoration, whereas the older exhibition types were primarily flowers of the show bench.

The sweet pea and the dahlia do not stand alone. The rise and fall might easily be traced of regal, fancy and zonal pelargoniums, of the old-time florist's pink, of the auricula, hollyhock and many other flowers. But to what end? Disease may, in some cases—as with the hollyhock—have been largely responsible for a fall from popularity; but, apart from this very natural reason, the main story is in every case the same: popularity follows new developments, and with stagnation comes a fairly rapid fall from favour.

THE DEVELOPMENT OF THE ORIENTAL POPPY.

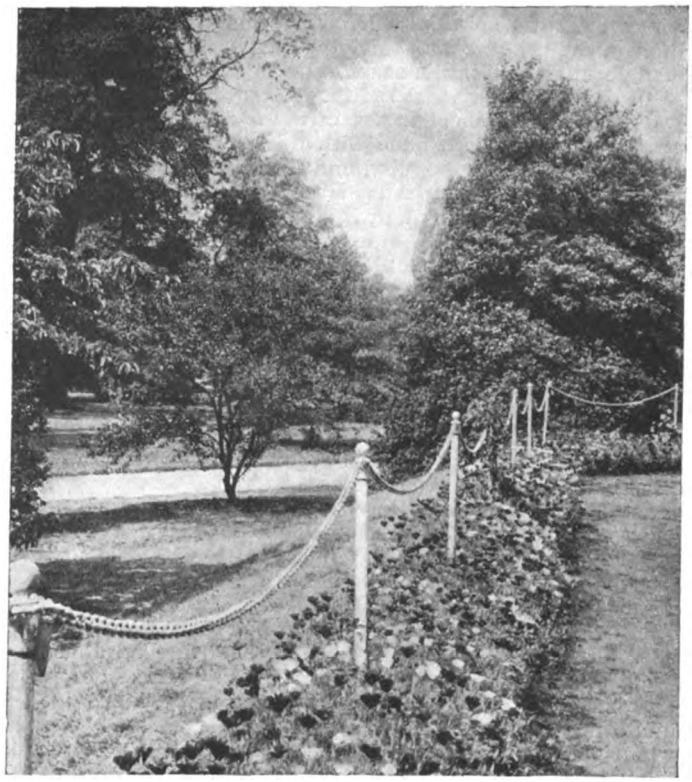
Equal degrees of development do not, however, of necessity involve accessions of popularity, even when beauty of form and colouring seem on a par. Immense improvements have of late years, and until quite recently, been made in the Oriental poppy. The flower is at once showy when massed and beautiful in its colouring and the arrangement of its parts. The plant is easy to cultivate, and its blossoming time comes when flowers are none too plentiful. All this notwithstanding, the Oriental poppy has never had the vogue of the sweet pea, and it is fairly safe to say that it never will have; and this for several reasons. Oriental poppies are desirable as cut flowers only when the severed ends of the stems are treated with boiling water or an efficient styptic; sweet peas may be gathered and placed straight into water. Poppies are not fragrant; *some* sweet peas, at any rate, are. Poppies take a considerable amount of ground space per plant as compared with the more popular flower, and their flowering season is shorter. Yet, in my judgment, these are but minor reasons for the immense difference in the respective degrees of popularity of these two flowers during their own particular boom periods. The principal advantage of the sweet pea was that it could (and can) be *sown to flower abundantly the same year.*

A plant, to be everyone's favourite, must be capable of being flowered in perfection at short notice, and this, in practice, seems to give great advantage to plants of annual duration and to bulbous kinds, using "bulbous" in its broadest sense to include plants which lay up underground reserves and may readily be dried off and planted in that condition, whether the method of storage is by means of bulbs properly so-called, or corms, or tubers.

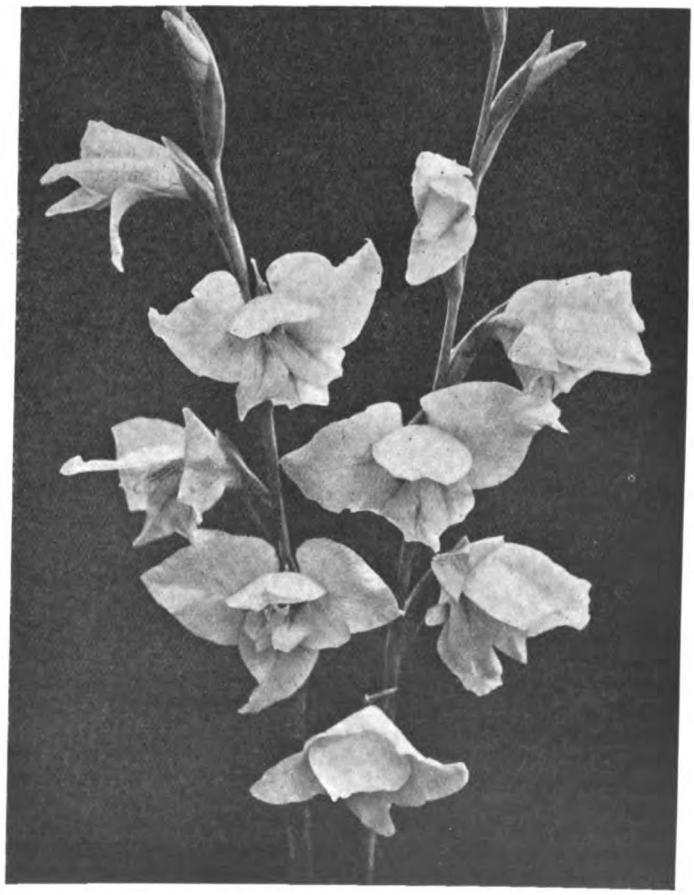
Bearing these facts in mind, let us now consider the probable trend of flower fashions in the immediate future. The bearded iris has had quite a run of popularity, which is likely to continue a while longer, and it can be flowered—if not flowered to perfection—the first season after planting. It is, however, most effective when massed, and the flowering season of any particular variety is not a long one. No startling new development would be likely, then, to give it the popularity once enjoyed by the sweet pea, and, in point of fact, no remarkable developments are to be expected.

THE PLANT OF THE FUTURE.

Very different is the case of the gladiolus, which may be regarded as *the* flower of the immediate future. One may plant corms at Eastertide and have an abundance of first-quality flower the same season, and the progress achieved with the flower since the introduction of G. primulinus about the beginning of the present century, has been phenomenal. The primulinus hybrids are wonderfully free to flower, splendid for indoor decoration and, to the best of my belief, winter-hardy in almost any part of Britain, though, owing to their rapid rate of increase, the corms should be lifted at least every second year. Their freedom to flower may be gauged by the fact that some corms will produce, in suitable soil, as many as seven flower-spikes in a single season, and one year's spawn will often blossom the next. For indoor decoration, the spikes need not be cut until the lowest flowers have faded and the spike is getting a little dishevelled. Even then, if the faded blossoms are removed each morning and the spikes shortened accordingly, they will provide most effective decorative material for some seven to ten days. By successive plantings and, to a smaller extent, on account of the habit which the corms have of throwing side spikes, they may be had in blossom from the latter part of June till the end of October, or even later. Further developments are in store for some few years yet, even if the many fine species recently introduced or re-imported



WITH THEIR LONG SEASON OF FLOWERING AND FREEDOM OF BLOSSOM ESCHSCHOLTZIAS ARE ONE OF THE MOST VALUABLE ANNUALS.



THE GLADIOLUS, THE FLOWER OF THE IMMEDIATE FUTURE.

Within the last twenty years the rise of this flower to fame has been rapid and phenomenal.

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from South Africa do not allow the hybridist to produce entirely fresh and desirable breaks, which they may, or may not, do. I think, then, that we may safely predict the rise of the primulinus hybrid gladioli in the near future to a popularity rivalling that of the sweet pea at its zenith.

From the gladiolus one naturally turns to the montbretia. Great things have been done with this flower of late; yet it has not become really popular, and I do not fancy that it will. To begin with, the colour range is restricted, and, although the spikes continue long in flower, it is seldom that more than two expanded and unwithered flowers will be found at one time on one inflorescence. The plant is finest when boldly massed and seen from a distance, and from such a point of view the necessary lifting of the corms each autumn is a serious drawback.

Now, what of bulbous plants proper? The lily is a flower for the man whose very soul is in his garden. It needs real knowledge and understanding to cultivate successfully any but a few of the commoner species. All keen gardeners, then, will, as heretofore, grow lilies; but we shall see no "lily boom." The Darwin and other May-flowering tulips will continue to charm us from many a bed outdoors as well as in the conservatory and, as cut flowers, indoors; but no advance is to be looked for in this field, and they should scarcely make further headway. The narcissus is in a different case; further advance with the different sections is made manifest year by year, and an even wider popularity for this most favoured of spring-flowering bulbs may be expected. Among bulbs for cultivation under glass the freesia has shown an immense improvement during the last two decades, and its steady increase of popularity should continue yet awhile. The lachenalia, too, is rapidly doffing its workaday attire and becoming a gorgeous, as it has always been, and easy plant.

Among what are generally accepted as annuals, progress is most apparent at the moment among the eschscholtzias, godetias and clarkias, the first-named and the last being excellent for cut flower. The eschscholtzia is by far the most useful of the trio, owing to its long season of flowering and its freedom to blossom, and its colour range is wide and still extending.

When we come to perennials, we have to note a number of very popular plants from quite dissimilar genera—a couple of geums, a brace of potentillas, an anchusa or perhaps two, a few campanulas, Thalictrum dipterocarpum, the double form of Gypsophila paniculata, and so forth. It is very probable that there will be additions to these sporadic "stars," but it is less easy to predict whence they will materialise. Of *strains* of flowers, the delphinium has made most progress of late, with the lupin a good second, if we except the iris, already referred to. Both larkspur and lupin may be expected to attain still greater measure of popularity; but the ubiquitous and useful herbaceous phlox seems already to be commanding less attention, and the same may be said of our old friend columbine, Latinised into aquilegia. There are evident signs of a revival in interest in the bunch primrose or polyanthus, though, to the best of my belief, the finest strains in existence to-day fall far short of the best of thirty years ago.

And now, as we turn to shrubs, we come to our national flower—the rose—the popularity of which none can doubt. Whether it will continue to do so depends upon the successful launching of new "breaks," and these may be expected, for the world's rose raisers are an alert set of men.

The increased popularity of flowering shrubs in general may very largely be attributed to a cutting down of costs after the war, and, as complete recovery is likely to be long delayed, the shrubs will doubtless stay long enough to be properly appreciated for their own sakes. If I might pick out a family which is likely to meet with great and greater favour, I would select the broom, with its great possibilities of hybridisation.

We may expect, then, a continuation of popularity for flowering shrubs, and particularly for the rose, and immensely increased attention may be forecasted for the gladiolus and dahlia, with very considerable accessions of strength to the bands of devotees who favour the daffodil and the freesia.

R. V. G. W.

SOME NEW CARNATIONS

THE choice of the best varieties of carnations, both in perpetual and border kinds, depends to a certain extent on personal taste, but such points as shape of the flower, quality, splitting of the calyx, length of the stem and lasting properties are agreed upon by most people. Some prefer a variety with a good perfume, others aim at producing flowers perfect in colour and form. Many of the older varieties do not compare at all favourably with those raised within the last ten years. In colour, lasting properties and, above all, productiveness they are far behind the newer kinds. Take, for example, White Pearl. This is now quite the finest white in cultivation, and is a great improvement on other white carnations. It is not a profitable concern to continue with the same stock year after year. Stock deteriorates, and for an equal amount of labour carnations superior in quality and number can be produced if new stock is periodically obtained. It is always interesting to try new varieties, and in these notes some of the best recent introductions are mentioned.

An excellent crimson with a delightful old clove scent is Sir Philip Sassoon. The flowers are borne on stiff, erect stems and the growth is compact. Lady Hindlip is a pretty carnation which has received an award of merit. The white ground of this variety is shaded and streaked with red. Mauve Queen is quite a break in colour, being a mauve pink, but on the whole it is not a particularly good variety. Shot Silk has been much talked of recently. It is described by the raisers as an Indian chestnut, flaked and rayed deep salmon red—an unusual colour. The flowers are very good in form and the calyx is non-splitting. Butterfly surpasses the last four mentioned in perfume. This is a white carnation delicately shaded with deep red.

Cameron and Beauty of Durham are somewhat similar in colour. Cameron is a bright rosy pink, and Beauty of Durham a brilliant salmon pink. Both are vigorous in growth and good in form. A really vivid and glowing cerise is Master Michael Stoop. The flowers are large, well shaped and the calyx does not split. It is a very effective variety. Another new cerise carnation is Janet, which is of dwarf habit and has flowers of a medium size. Red Laddie is a sport from Laddie. The red petals are shaded white towards the centre of the flower, which is borne on an exceptionally long, wiry stem. Dainty is an interesting novelty. It is an orange carnation with the groundwork heavily speckled salmon pink.

The perpetual border carnation is increasing in popularity owing to its freedom of flowering. A number of new varieties have been introduced recently, and among them are Sussex Tricolour, Sussex Flake and Sussex Ray. Sussex Tricolour has a white ground definitely striped and edged with mauve and cerise. Sussex Flake is a soft pink flaked with red. This is a strong, free-flowering variety. The striped crimson ground of Sussex Ray is attractive.

A border carnation which has a strong constitution is hardy enough to stand outside all the winter, and if it keep its foliage clean, is always sought after. It is interesting to experiment with new varieties to see if they possess those qualities. Caliban is a novelty for 1925. It is a striking fancy, the apricot ground is heavily marked with mauve and bright rose, and the flowers are of medium size. Dr. Stone is another apricot fancy with vivid pinkish red markings. Both of these are very robust. Joan Wardale is a crimson self which gained a first-class certificate last year, and John Stobart is a white and rose fancy of distinct colouring.

Several new varieties have been added to the famous collection of Douglas Cloves. Among them are Bookham Orange, Sultan and Coral Clove, all good border carnations. Bookham Orange is a vivid orange with large flowers of excellent form. Sultan is a dull orange-apricot variety, while Coral Clove has beautiful coral pink flowers borne on stiff stems 12ins. in length. These clove carnations are especially valuable in the garden on account of their sweet fragrance.

Some new Allwoodii have been added to the list, and are worthy additions to any collection. Three of the best are Roger, a salmon pink edged and rayed maroon; Jane, a light pinkish mauve with a deep red eye; and Anne, a white with a maroon eye. Both Jane and Anne are double Allwoodii with smooth-edged petals, and are sweetly scented.

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THE GREAT CHELSEA SHOW

May 19th to 23rd

CHELSEA is so well known as the premier horticultural show of the world that it requires no introduction to our readers. Such is its importance that people come to see it from all over the world. This year the Council of the Royal Horticultural Society have started an innovation by making the Show last five days instead of the customary three. Whether this move is entirely wise remains to be seen. Certainly, as the Show is open until Saturday, it will allow many people to see it who are unable to spare the time on a weekday, but a five-day show creates difficulties for many exhibitors, particularly for those showing plants whose period of blooming is short or which are unable to stand the stuffy atmosphere of a hot tent for five days.

The freshness of the exhibits towards the end will depend more than in past years on the weather. It appears, at the time this note is written, as if the weather is going to be kind to us at Chelsea. There is general need of a month or two of dry weather, but, unfortunately, this sudden spurt of sunshine has appeared a little too late to be of much use to exhibitors; the season has been very backward generally, but it is amazing how plants have progressed considering the soaking they received last year.

As usual, the exhibitors have staged a noble show of blooms, which each year proves more and more that we have the best gardens in the world. Nowhere can be seen such a wonderful mixture of everything that is common and uncommon in horticulture.

FORMAL GARDENS

The gardens constructed at Chelsea this year are varied in design. Some are sunk gardens, others are bounded by low walls or trellis, while several have small streams running through them, which in their setting of vivid colours look most effective. Several of the gardens, with their rocks, stream and method of planting are more allied to semi-wild gardening than formal. In a few cases the plants were overcrowded and unsuitably chosen, but on the whole the gardens were good. Tall herbaceous plants on raised beds surrounding a formal sunk garden are not in keeping, and overcrowding is a great mistake. One or two of the gardens would be found impracticable.

A glimpse through one of the two entrances of Messrs. Carters and Co's. exhibit reveals a charming sight. There is a feeling of tranquillity and harmony in this garden of rhododendrons. The large circular garden is surrounded by conifers, the dark foliage of which makes an excellent background. Varieties of rhododendrons in many shades of red and pink have been selected, and are shown to perfection in the semi-circular raised beds, which at the back form a terrace. The low retaining walls are planted with aubrietia. In the centre of the garden is a round pool, upon which dark shadows are thrown from the neighbouring trees. The beds near the pool are filled with pink and red stocks, and a contrasting colour is introduced in vases by the planting of blue hydrangeas. The garden ornaments, too, are well chosen, and the stone seats, lead vases and two statues lend dignity to the scene.

The merit of Messrs. Cheal and Sons garden is that it is natural. It is not a blaze of colour produced by packing in tightly pot after pot of forced plants, as is the case with some exhibits. Under natural conditions these plants could not bloom so freely in such close quarters and this exhibit gives a true representation of the correct planting for this type of garden. The stream wanders slowly through the garden, and the gently sloping grassy banks are edged with moisture-loving plants. Groups of vivid azaleas, such as J. C. Van Thol, laburnums, acers and a hedge of conifers are seen round the outskirts. At the water's edge bold clumps of trollius, funkia, trillium and the large-leaved gunnera flourish in the cool rooting medium.

MESSRS. CHEAL'S WATERSIDE GARDEN.

THE SEMI-WILD GARDEN SHOWN BY MESSRS. WALLACE.

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One of the best of the gardens has been constructed by Messrs. Wallace and Co. It should, perhaps, have been simpler and less crowded, but the general effect is good. Alpines of many kinds are growing in the steep rockery which rises up from the two pools. A winding path passes masses of azaleas and wistarias, which gives, when the summer-house is not in view, a Japanese effect to the garden. Rhododendrons, acers and conifers form a perfect setting.

Messrs. Gaze and Co. also have a stream and a summer house in their garden. Situated at the corner of two of the avenues, this firm have a first rate position for their exhibit and they have certainly made the most of it. In the space allotted to them they have constructed a rectangular garden with a high bank at the back, at the top of which the summer house is placed. This bank is a vivid mass of colour. Oranges, purples and mauves make a striking contrast against the young, soft green leaves of the shrubs or the dark crimson foliage of the acers. A small stream, planted on each bank, runs through the garden. On one side of the

A PORTION OF MESSRS. BAKER'S GARDEN.

exhibit is a quaint little sunk garden, which in itself is pretty, but is not in keeping with the rest of the garden.

A garden which, as it stands, would be an eminently suitable design for a town garden, has been constructed by Messrs. Vernon Bros. It is complete in itself and with its brown, square trellis work for covering the ugly brick walls of a London garden, its lily tank, wall fountain and paved walks, it is a garden of beauty and varied interest. The centre of the garden is slightly sunk, so that each end forms low terraces. Tulips, standard fuchsias, heliotropes, myosotis and azaleas, form the chief colour in the garden; while saxifrages, aubrietia, arabis, and many other plants flourish in the crevices of the stonework.

Messrs. Bakers have a delightful garden in which both the design and planting are good. In one corner, beside a heather-thatched summer-house, a small waterfall trickles down the ledges of water-worn limestone. Gradually this water forms a small stream, which winds through the garden past boulders of rock and under a stone bridge. Alpines of all kinds bloom happily in the rock crevices, and primulas and gentians flourish exceedingly. A large patch of Primula secundiflora is most effective by the waterside. Acers, daphnes, spiræas and many other plants form distinct groups of colour. The summer-house (which, in the opinion of some people, is not an attractive addition) is the best position from which to view this garden.

The small rectangular formal garden bounded on the four sides by low walls has been constructed by Messrs. Maxwell and Beale. The walls rather spoil this garden. Two paths cross in the centre, and at their junction an attractive old Somerset well has been placed. The well-head is thatched.

Most effective is the anemone garden of Messrs. Reamsbottom, who have arranged the beds in such a way that their famous St. Brigid anemones are well displayed. Each colour is separated into a different bed, and against the grey of the paths and garden ornaments the bright colours give a delightful effect.

Mr. John Klinkert has a formal garden composed entirely of clipped trees in many odd shapes and designs. Mr. Klinkert excels at topiary work, and this exhibit well maintains his high standard.

The effectiveness and utility of stone ornaments, seats, vases, balustrades, sundials and even dove-cotes was well shown by the formal garden arranged by the Horsecombe Quarries and Stone Works. They have constructed a rectangular garden, and circular stone steps lead down to a sunken middle portion in which a tall stone dove-cote has been placed.

The garden exhibited by Mr. Reginald Winder is good in design, but the colouring of the flowers is too pale to be effective. The colour scheme is white, pink and mauve; had the last two shades been of a deeper tint the garden would have been much improved. The insipidity of the flowers is due, to a large extent, to the fading in the sun of the forced blooms, but grown outside the varieties selected would be much brighter. The dwarf polyantha rose Ellen Poulsen, for instance, has turned to the palest of pinks. The steps on each side of the garden lead down to a small round pool. Clipped box trees stand on either side of the steps, and the surrounding beds are filled with dwarf polyantha roses in pink and white, and an edging of mauve violas finishes the bedding. Standard White Dorothy roses are in several of the beds, and clusters of pink ramblers cover the summer-house.

Berberis and crimson-leaved acers occupy the four oval beds in the garden, and armerias and saxifrages are placed in the cracks of the sandstone walls. The double-flowered gorse in the bed just outside and on the top of the walls forms a line of bright colour, but is not suitable for a formal garden.

Messrs. Ernest Dixon and Co. have a small sunk octagonal garden which is quite pretty but in no way outstanding. The steps and shape of the surrounding raised beds are good, but the planting might have been better arranged.

The brightest of any of the gardens is that of Messrs. R. and C. Cuthbert, which is formed only of azaleas. All the best and most effective varieties have been chosen, but unfortunately when the flowering period is over all the colour of such a garden would have gone.

The paving in the garden of the Johnstone Garden Contractors, Limited, is, perhaps, the best in any exhibit. Their garden is edged with yews and planted with hydrangeas.

Behind a fine exhibit of garden furniture by Messrs. W. Wood and Sons is a small formal garden constructed by this firm. The design is good and the garden gives a feeling of restfulness. Acacias, rhododendrons and azaleas brighten the small beds, and a comfortable summer-house adds to the appearance of the garden.

ROCK GARDENS

Nearly all the outside rock gardens are competing for the *Daily Graphic* Cup, and offer varying treatments of the classical theme of rivulet with waterfall, bordered by grey boulders set in turf. This has become almost a set subject for the competition, and year by year it becomes more pictorial and more remote from practical gardening, which is a little disappointing for the garden owner who comes in search of new ideas. It is a pity that the judges should set, or appear to set, so high a value on scenic effect to the neglect of sound and permanent planting, for they call the tune and the competitors must tread the measure.

This year the gardens are more brilliant and pictorial than ever, though more competitors than usual have abandoned the classic theme and struck out a quiet line for themselves. Apart from those few, the pictorial effect is more impressionistic than last year, and something of the prevailing fashion for violent colours, sharp-edged and unblended, appears in the colour schemes.

The lateness of the season and the earliness of the Show have tended to limit the choice of plants in flower, so that there are more anomalies of planting than usual, and in several gardens aubrietia and fancy violas have been turned into scree plants, and lime-haters and lime-lovers been compelled to forget their differences for a week.

It is interesting to see the individuality that different craftsmen have infused into the classical theme. Messrs. Brook have reproduced a Westmorland glen, with a perfectly naturalistic waterfall, dividing into two streams which unite to form a brisk little rivulet. On one side of the glen the strata have been broken by a fault which time has converted into a turf slide in which a dwarf spruce has found a lodging. Over this landscape a jewel box of glittering colour has been poised, so that the effect close up is kaleidoscopic and opalescent at a distance. The same firm have built to one side of the rock garden a little formal garden surrounded by a low wall of mossy stones enclosing a bed of old-fashioned flowers and a fountain spurting out of an old weathered boulder which is in itself a picture worthy of a fine frame. The effect is of a very old garden coloured and softened by the tone of time.

Messrs. Hodson have poured their colour in streams down wide, flat slopes of scree between grey boulders, and they have obtained it by the use of real scree plants—Androsace primuloides, Silene acaulis, Helichrysum bellidifolium, etc., soft pink and white and grey. Beyond their waterfall, almost hidden in a mass of ferns, is an apricot-coloured azalea that carries the eye back into the shrubbery and gives the impression of a garden that is continuous with its surroundings. Good use is made of dwarf conifers

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to form a sombre little pine wood on one side of the glen.

Mr. G. Whitelegg's waterfall issues from a group of dwarf conifers weeping over a clump of pale lavender Phlox Laphami. On either side of the stream the colour is laid on in broad mosaics of magenta pink, chrome yellow and ultramarine. On one side of the garden, and round the corner, is a turfy hillside planted with buttercups and that fine old cottage-garden plant, the double lady's smock. Opposite to it is a conflagration of red and orange azaleas.

Messrs. Pulham have aimed at a much quieter effect with drifts of soft colours. A patch of dull red mossy saxifrage with white iberis and an old gold cheiranthus is alongside the delicate lilac pink of Æthionema Warley Hybrid. In the middle of the garden is a large grey boulder covered with silver saxifrage and a-wave with their white plumes, the silver and white and grey faintly lit up by few pink sprays.

Messrs. Cutbush have taken a very strong line with the classic theme, and their treatment of it is almost futuristic, a most interesting and unexpected development. Instead of the rounded, weather-worn boulders, their stone is sharp-edged and angular, built up into almost regular terraces which enclose masses of magenta azalea, golden Tulipa persica and grey-green Allium karatawiense. The waterfall is reduced to a trickle among ferns and the mountain path is represented by the sharp angles of a crazy pavement. As a sudden concession a group of Lewisia cotyledon (exceptionally well grown and floriferous) harmonises in its tea-rose colouring with the warm red of the sandstone. A rare plant is Lewisia columbianum that contrives to look like a large, strangely pink silver saxifrage and is given the real thing as a neighbour.

Messrs. Clarence Elliott have no waterfall and make no attempt to follow the convention, but have a cliff set with curious and interesting colours. The dull magenta and grey of Primula pulverulenta with the soft orange of a geum, the sulphur yellow of Primula sikkimensis with the delicate lavender of Cardamine pratensis fl. pl., and a drift of Rhododendron fastigiatum and alyssum, gold and pale violet. In front of the cliff is a conical mountain covered with the little spires of Juniperus compressus nanus, which are carpeted with Veronica repens and Silene acaulis saxatilis (a really free-flowering variety). The lower slopes of the mountain are planted with Mertensia echioides and Aquilegia flabellata.

Messrs. Gavin Jones and Ingwersen have taken a line of their own and reproduced a miniature mountain pass with a steep slope on one side and a rounded shoulder on the other. The shoulder is converted into a *pré fleuri* by close planting with small brilliant alpines, Gentiana verna, Trifolium uniflorum, Lychnis Lagascæ (a very pure pale pink), Linaria æquitriloba, a small form of Linum arboreum (soft butter yellow) and Aquilegia Helenæ in violet and white. The whole makes an iridiscent blending of cool colours. The steep slope is planted with larger and bolder plants: the moonlight broom, Onosma albo-roseum and Saxifraga Cotyledon caterhamensis with its great waving plumes of pink and white.

The miniature rock gardens under cover are little pictures of concentrated brilliance in which the exhibitors have contrived, with remarkable ingenuity, to suggest the qualities and possibilities that their plants would develop in a larger sphere, and at the same time they have created this year some exquisite little works of art.

Messrs. Frederick Wood of Ashtead have built up a background of subtly varying tones of green, dull gold and bronze, with dwarf conifers and Japanese maples, broken in two places by the cool colours of the smaller

THE FORMAL LOW-WALLED GARDEN OF MESSRS. BROOK.

MESSRS. JONES AND INGWERSEN'S BOULDER GARDEN INSIDE THE TENT.

A PORTION OF MESSRS. WOOD'S ATTRACTIVE EXHIBIT.

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brooms, pale sulphur yellow, ivory white and the curious subdued rosy purple of Cytisus Dallimorei. In the middle of the exhibit is a miniature pond overhung with brownish orange mimulus and sprays of white Saxifraga Cotyledon, and bordered with mossy phloxes and the delicate lilac blue of Campanula Steveni. Verbena chamædrioides, which seems to be hardier than is generally supposed, is shown growing through a prostrate juniper, a situation that apparently suits its needs as well as it shows off the glowing orange scarlet of its flowers.

Messrs. Gavin Jones and Ingwersen have built up a rounded boulder at one end of their exhibit with masses of greyish purple saxifrage infiltrating its crevices and surrounding a wide mat of the greenish silver Raoulia australis, the whole forming a subtle harmony of colour with a restful feeling of permanence; at the other end a bold mass of golden Tulipa persica is grouped at the feet of the three tall conifers.

Messrs. W. H. Rogers and Sons have a large double-sided exhibit containing a blaze of Welsh poppies bringing out the value of the double orange form, which never looks so well alone as when associated with the singles, whose colour it seems to enhance.

Clarence Elliott and Co. have piled up a cliff, planted with rock rhododendrons and Daphne petræa, overhung by pink clouds of Saxifraga Cotyledon, with at one side a juniper hill rising austerely out of a brilliant alpine lawn. A "pretty conceit," as Parkinson might have said, is a single specimen of a minute, very deep pink form of Primula farinosa set like a jewel in the middle of a round silver plaque of Raoulia australis.

Messrs. G. H. Crow show how many colours the rock garden can produce by massing together every imaginable shade, from the black of Bowles' viola to the crushed strawberry of Malvastrum Monroanum, into a glittering tapestry.

Messrs. Waterer group lady's slipper orchids, in rose and white and golden brown under copper-coloured Japanese maples, and surround them with a carpet of violet wahlenbergias, mossy phloxes and pale pink daphne.

Messrs. Tucker of Oxford carry up their garden higher than most with tall spires of delphiniums and white lilies. Alongside them the moonlight broom comes spraying through the dark branches of a dwarf spruce.

TREES AND SHRUBS

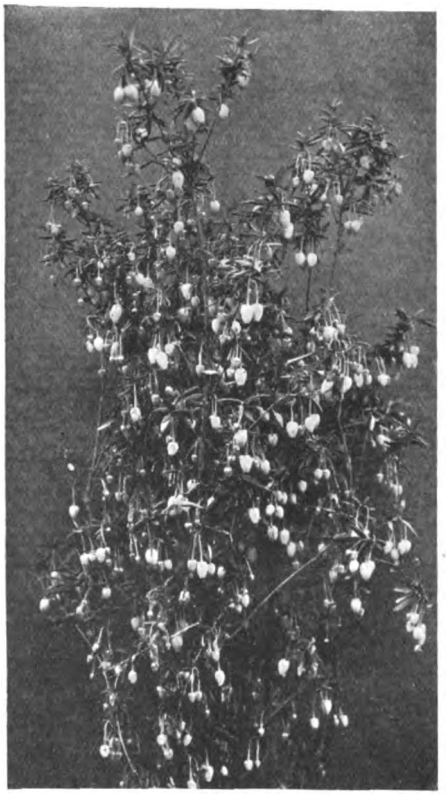
Shrubs are as well represented as ever. Luckily, this fine spell of warm weather has brought on plants which would otherwise be unrepresented. The grouping on these stands is a noticeable feature which seems to improve yearly.

Messrs. Waterer, Sons and Crisp are again staging their fine rhododendrons and azaleas. Among them is the sport from Pink Pearl called Mother of Pearl. There is, no doubt, a great future for this fine rhododendron. The truss is about the same as that of Pink Pearl, but the texture is a little firmer, while the colour is a beautiful white, which is set off by the rose-coloured stamens. Another good hybrid is Starfish, a good pink with darker rose-coloured buds. The petals are reflexed and the truss looks straight at one. We are glad also to see a fine show of Azalea Kæmpferi on this stand. This azalea, with its terra-cotta flowers, is perfectly hardy and should be far more grown than it is at present.

Messrs. Koster and Sons are staging a fine exhibit of their famous hardy hybrids. Among the most noticeable are Mrs. Lindsay Smith, a particularly pure white, faintly tinged with yellowish green at the throat and with a few greenish spots on the upper petal. Miss Noreen Beamish is a clear rose without markings, while Rosamund Millais is a good carmine with very dark leopard markings on the upper petals.

Messrs. Cuthbert are showing a large exhibit, in the main tent, of their hardy azaleas. This includes nearly every class and proves the worth of these most useful plants. Mollis Comte de Gomer is a fine salmon orange of nice free habit, while one is glad to see the fine Azalea Daviesii with its pontica blood in it. The smallish flowers are carried in good trusses and are white tinged with yellow on the upper petals.

The Executors of the late Mr. Anthony Waterer have a large stand of his famous strains of hardy hybrid rhododendrons. With the exception of two all of the plants shown were raised at Knaphill. Such old favourites as B. de Bruin, still one of the finest of crimson hybrids; Sappho, a fine upstanding conical truss of white flowers with a deep purple blotch on the upper petals, and so on. This strain is famous for its absolute hardiness and, although



THE MAGNIFICENT CRINODENDRON HOOKERI, SHOWN BY MR. REUTHE.

some of the newer hybrids have larger flowers, yet few can vie with these old favourites in free flowering year after year.

Messrs. L. J. Endtz of Boskoop are showing a few hybrid rhododendrons and some fine azaleas. Among them is a magnificent new Mollis × sinensis called Alma Dyke. The colour is terra-cotta orange. Another good terra-cotta colour is that of Baheuf, another mollis × sinensis seedling. This firm is wholesale, and does not cater for the retail trade.

Messrs. Cheals are showing a fine exhibit of ornamental and flowering trees and shrubs. The main theme is Acer palmatum var. atropurpureum and laburnums. These are two plants particularly useful for grouping together, as the fine dark leaves of the acer show off the yellow of the laburnums exceedingly well. Lilacs, rhododendrons, azaleas and cytisus are also prominent.

Mr. Reuthe's exhibit is most noticeable for three very fine plants of Crinodendron Hookeri. These are so fine that they stand out among all the fine plants at Chelsea. The pendent scarlet drupes are thick on a shapely bush about 7ft. in height. Unfortunately, this plant is scarcely hardy. Other plants on Mr. Reuthe's stand are azaleas, Kalmia latifolia, brooms, enkianthus and numerous rhododendrons, among them Lindleyanum, Keysii and campylocarpum.

The Donard Nursery Company are exhibiting ornamental and flowering trees and shrubs. Among them are fine plants of Ilex Pernyii, I. Fargesii, a very handsome evergreen with narrow leaves about 4ins. long which might be more often seen; and Lomatia pinnatifolia, a fairly hardy evergreen with leaves cut like a fern.

Mr. Lewis of Hanwell is staging standard and bush hybrid rhododendrons in a good and well grown assortment.

Mr. Notcutt is again showing his well known standard cytisus, including Donard Seedling, Daisy Hill splendens, Osbornii, along with various maples, lilacs and weigelas.

Along with lilies and irises, Messrs. Wallace are showing many well grown hybrid rhododendrons, such as White Pearl, Ascot Brilliant, N. N. Sherwood and Armistice Day. All the hybrids on this stand are perfectly hardy and will stand full sun.

Messrs. Hillier are staging a fine exhibit of shrubs. It is pleasant to see Viburnum macrocephalum, one of the finest of all the sterile viburnums and invaluable for an inside wall in a cold house. The main exhibit consists of hydrangeas of various forms, cytisus and wistaria, with a sprinkling of retarded prunus and pyrus, among them Pyrus Malus Sargentii. A number of rare shrubs are to be seen on this stand, such as Daphne caucasica, an old introduction but now rare in cultivation, Fothergilla major and Prunus Padus grandiflorus.

Mr. Slocock has a good exhibit of hardy hybrids, among them the rhododendron and azalea cross of creamy yellow called Broughtoni aureum, Goldsworth Crimson (a fine upstanding hybrid) and some new Aucklandii and decorum seedlings are also shown.

The Yokohama Nurseries staged their usual exhibit of trained and dwarfed trees together with azaleas.

Messrs. Robert Green, outside the tents, are exhibiting their collection of trained bays. For all who want hardy trained trees, these are admirable, whether in plain clipping or those with spiral stems.

Messrs. Charlton are staging a large exhibit of hardy shrubs. This firm specialises in various forms of maples, and their specimens, whether cut-leaved, variegated or coloured, are all well grown. They also show Lavender Stœchas, a curious plant with flowers in rows forming a quadrilateral, and large violet bracts coming out at the top. It comes from the Mediterranean and is not over-hardy

In addition to their other exhibits, Messrs. Cutbush have a most excellent collection of clipped boxes and yews. Whether in plain shapes or in birds and animals, they show good cultivation, while the clipped box fence is both novel and attractive.

Messrs. Fromow's collection of maples requires no introduction. Their variety in shape and form and colour of leaf is endless.

Mr. G. Whitelegg, along with his alpines, stages azaleas and broom.

Mr. Charles Turner shows white greenhouse rhododendrons, such as Purity, Exoniensis and Beadonii, obviously with Nuttallii blood in it, owing to its long trumpet. On another stand he is staging lilacs, which are not so far advanced this year as last. Among the best are Charles Joly, a beautiful semi-double of deep claret colour; and Princess Marie, also a semi-double rose-lilac of a good shade.

Messrs. Watsons of Dublin are showing a fine new seedling broom called Dorothy Walpole. The colour is pure, but difficult to describe. It might be called dull crimson.

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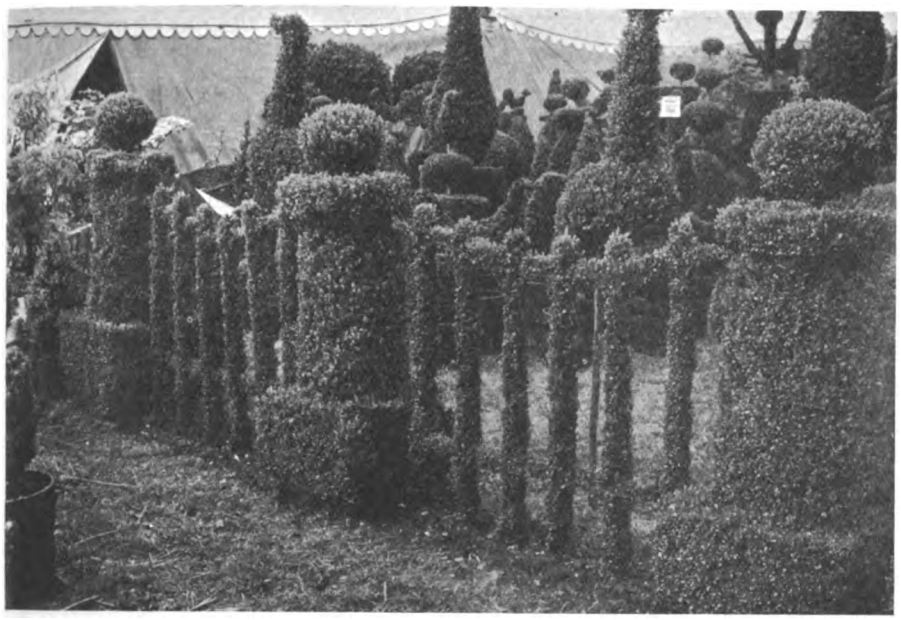

A CLIPPED BOX FENCE SHOWN BY MESSRS. CUTBUSH.

Messrs. Russell have an outside exhibit of hardy and semi-hardy shrubs, such as maples, pittosporums and olearias. They also show a number of ornamental vines, including those fine species, Vitis Henryana and V. heterophylla.

Messrs. Gill stage a number of tender and hardy rhododendrons. Their form of R. Falconeri is particularly fine, with a larger truss than is usually seen. Among others are Dalhousiæ, Cornish Cross and Beauty of Littleworth, one of the best white hybrids in existence.

Messrs. Harrods are exhibiting a collection of clipped trees for formal work.

LILIES

As was the case last year, Messrs. Wallace of Tunbridge Wells are almost the only firm exhibiting these flowers. The oval group in the centre of their exhibit comprises Lilium longiflorum var. formosum, whose large and beautiful white blossoms override the dwarfer varieties of the umbellatum and Thunbergii sections. L. Brownii, with its handsome blooms so characteristically streaked with brown on the back of the segments, and L. regale, which truly deserves its specific name, with its nodding flowers tinged with gold in the throat and the bright yellow anther heads, call both for attention and admiration. L. regale undoubtedly is one of the lilies of the immediate future. The tall and handsome L. excelsum is also present, set off to advantage by a dark background of cupressus. A patch of brighter colour is supplied by the judicious placing of plants of L. umbellatum splendidum; while Orange Queen, of the Thunbergii section, supplies a lighter tone. A variety of which there are only a few plants is Golden Fleece, belonging to the umbellatum series, and it is worthy of attention. L. Martagon dalmaticum is as beautiful as ever, both in the unopened and full out conditions, with its reflexed flowers of a pinkish tinge. One of the most interesting species in the group is L. Farreri, whose elegant and pendent white blossoms are so quaintly marked with spots of a bluey mauve tone. A no less beautiful and decorative half-hardy species is L. Krammeri, so called after its discoverer. Like L. longiflorum, it carries large flowers, the perianth segments of which are of a delicate shade of pink overlying white. Unfortunately, unless given a very sheltered spot it does not thrive outside. Another graceful species which cannot fail to be admired is L. Willmottiæ.

A few plants of L. longiflorum var. formosum are staged by Messrs. John Peed and Son in their exhibit of greenhouse subjects. These are well grown and carry many large shapely blooms of pure white with the slight tinge of green in the throat so characteristic of this species.

Messrs. Bunyard of Maidstone also stage a few groups of L. longiflorum var. formosum and L. regale, which give a pleasant contrast with the blues of the irises, the main feature in their stand.

CLEMATIS

As in the past, Messrs. George Jackman and Son provide one of the most interesting but by no means less beautiful features of the Show by their excellent exhibit of all the leading varieties of large-flowered clematis in commerce. Every year this firm seem to do better and better, and this year they fully come up to the high standard they set last year, if they do not surpass it. Blues, mauves in light and dark shades, delicate pinks, along with whites, all mingle together and produce an effect that is rarely obtained by any other flower. These shades are brought out in relief by the foliage of a few of the brilliantly autumn-tinted Japanese maples at well chosen points. When coming to single out varieties it seems invidious to mention names, as one is equally as good as its neighbour. We must, however, submit a number which appeals to us. In the singles, such varieties as Lady Londesborough, with large blossoms of a pale mauve colour; Alexandra, with fine spreading flowers made up of four petals of a delicate mauve with a ring of white stamens in the centre; Jackmanni superba, a much improved form of the type carrying beautiful dark purple and velvety blooms; Mme. Edward Andre, with flowers of a good red tone; King of the Belgians, lilac-blue with a tinge of pink; W. E. Gladstone, with large blooms made up of spreading spoon-shaped petals of a light blue colour; and last but by no means least, The Bride—one of the new varieties, which, in addition to being tall and handsome, is probably the freest flowering white variety we have. In the double forms, we note the ever popular Belle of Woking and Duchess of Edinburgh (white).

In their exhibit of greenhouse plants, Messrs. L. R. Russell of Richmond stage a few of the more popular kinds, and these lend a distinct touch of colour against the foliage of the other shrubs on their stand.

IRISES

Both alone and associated with other flowers irises are to be seen in all their glory. The tall pallida irises predominate, and these are represented by many excellent varieties which have long stems bearing two and three and at times even more flowers fully open.

One of the largest collections is that of Messrs. George Bunyard and Co., who are to be congratulated on the success of their arrangement. There are irises of all possible types and colouring, and to break the lines and show up the charm of form which is peculiar to the iris they have occasional patches of Lilium regale and Campanula Fleur de Neige. The white flowers of these two plants are an immense help to the scheme. Except perhaps for the yellow-tipped white flowers of Iris Monieri, white does not naturally enter into the iris

A PORTION OF MESSRS. BUNYARD'S FINE COLLECTION OF IRISES.

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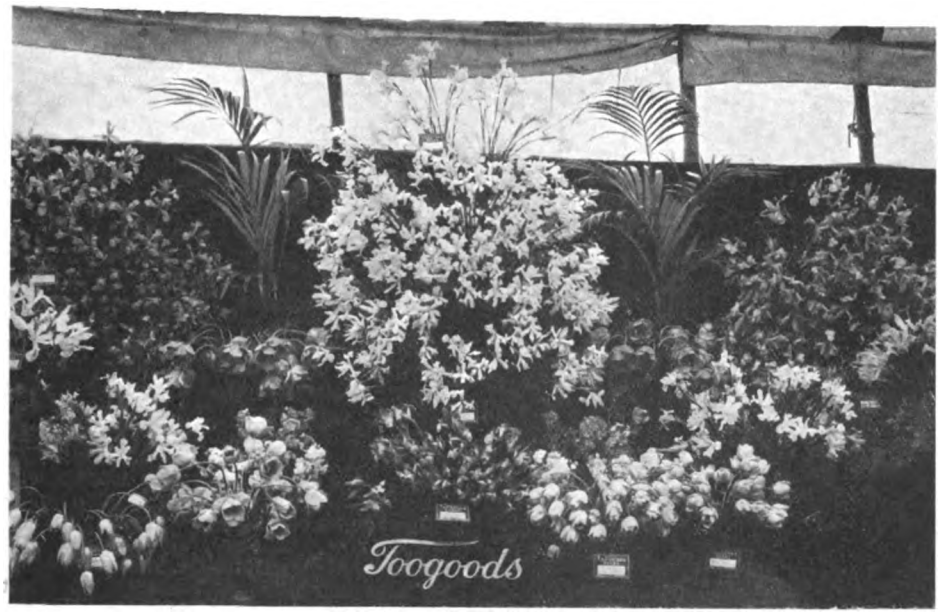


SOME OF MESSRS. TOOGOOD'S SPANISH IRISES.

scheme. Perhaps the very best of their many pallida varieties are Alcazar, Mme. Schwartz of delightful lavender tone, Corrida, Crusader (a medium blue flower brightened by a gold crest), Asia (which has a metallic lavender standard and deeper coloured falls) and Prospero. The squalens section, of lovely but baffling colour schemes, are represented by many most desirable varieties. A good selection of those to be seen includes Ambassadeur, Rosalba, Her Majesty and Glamour of pink tones, and Princess Victoria Louise, which has deep primrose yellow standards.

These lovely May and June flowering irises are also used to good effect by Messrs. Wallace and Co., who are showing a great many splendid sorts arranged in beds around their central stand. Here, again, it is the Iris pallida varieties that attract first attention by reason of their greater height and the depth of the falls on the plentiful flowers. Magnifica, of rosy lavender and rich purple colours, is an excellent example of this type. Tamerlane has pale blush standard and dark blue falls, Souvenir de Mme. Gaudichau, Shalimar, Mme. Schwartz with soft blue standards and deeper falls, Asia, Alcazar, metallic lavender standards andr ich purple falls, Lord of June with the palest lavender standard and silvery blue falls, Amy Page of Cambridge blue colouring. Queen of May (rose pink and yellow), Fro (rich yellow standards and rosy maroon falls) are splendid squalens varieties. Rather dwarfer, but of sturdy habit, are Blue Boy and Blue Bird, which are beautifully coloured. Interspersed with the above Messrs. Wallace and Co. have some of the beautifully marked oncocyclus irises, including Iris Susiana, I. Leichtlini and I. Psyche.

The grouping of the different varieties in the collection of Messrs. Barr and Sons is singularly effective, and this method well illustrates the garden value of the plants. The chief group is of Peter Barr, a tall iris of very pleasing lavender shades; Purple Laugier, of darker colouring, is an excellent companion variety, as also is La Beaute of rich blue shade. In the background may be seen grouped plants of Rhein Nixe bearing on graceful stems large flowers with white standards and rich purple falls, while near by is the rich blue Duchess of York. The blush pink shading of Wyndham is especially charming, and this harmonises well with Mme. Chereau, which is of creamy yellow colour broadly edged with pale lavender. Jamerlam is of striking metallic blue and purple colouring. Red Cloud, with its pink-toned standard and reddish mauve falls, also attracts attention, though none of the many varieties so well shown by Messrs. Barr and Sons is more beautiful than Quaker Lady, a rich flower of the I. squalens type.

The Orpington irises are set out on staging in the middle of the large tent, and here they may be closely inspected. In addition to many of the pallida section, they are showing some rarities, and among them is Cretan, which is especially noteworthy on account of its unusual height and the delightful fragrance of the flowers. This harmony in blue and maroon shades was found in Crete, from which it obtains its name. Tiflis and Caucasican are said to be seedlings from Iris imbricata. Although of dwarfer habit than the previous variety, they have large flowers of great charm. The former is of metallic blue shades, while yellow predominates in the latter. Scrimgar of very dark purple colouring possesses unusually long falls. Fritjof (blue), Royal (a very dark blue), Odin (white with yellow crest), Yellow Hammer and Zwanenberg are other delightful irises to be seen in this collection. A little bowl of I. californica seedlings is particularly charming and of especial interest in that a great variety of fascinating flowers may be raised from seed sown out of doors.

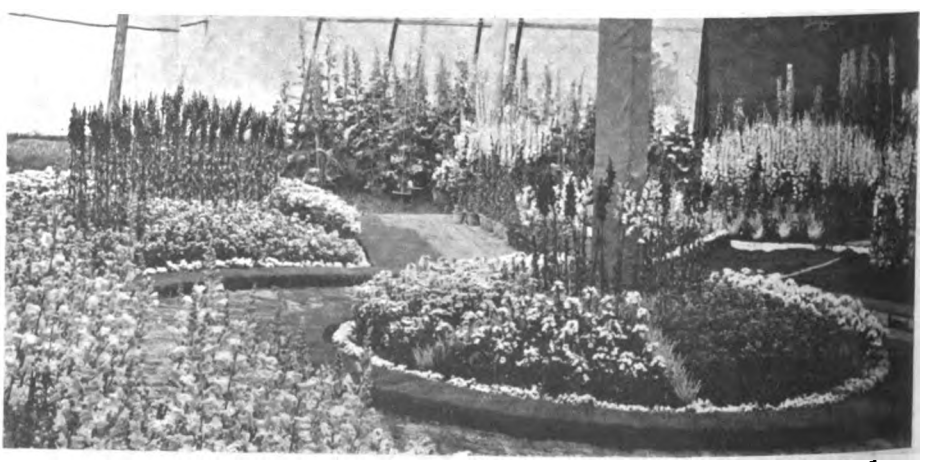
On Messrs. Toogood's stand a large collection of Spanish irises interspersed with Darwin and cottage tulips and sweet-scented stocks is shown. The irises are well arranged in tall stands, and include II. filifolia, Imperator (dark blue shades), Sensation (paler blue), Hart Nibbrig (medium blue), Innocence and Flora (pale shades).

In association with his unique collection of hardy ferns, Mr. Amos Perry finds an excellent setting for some choice irises. The Regelio-cyclus varieties, with their fascinating markings, are to be greatly admired. Typical examples are Cyclemestra, Olympia, Luna and Charon. The last named is, at first sight, weirdly sombre, but its full beauty increases with a closer inspection. I. Korolkowi has lovely lavender lines on a pale ground, while Sirona is of very uncommon reddish maroon colour. Besides the above, there were a goodly few of the taller pallida section and such as Bosnia maculata, with straw-coloured standards, and the blue shaded Mars.

De Golde are showing Dutch irises, tulips and anemones. Among the first noticeable varieties are Præcox, a good lavender, a fine golden yellow seedling, and David Blesh, a very good blue-lavender. This firm is wholesale only.

ANNUALS

A considerable amount of time and thought must have been expended by Messrs. Sutton and Sons on their unique exhibit. The general idea, as the military have it, is a central circle of antirrhinums and nemesias, with radiating blocks of the same plants in very many varieties. Broad gravelled paths, bordered by close grass of the greenest and most even texture, give easy access to the exhibit. Generally it is composed of antirrhinums and nemesias—there are a few other plants, a very dwarf white alyssum, the variegated coleus, but these are quite secondary to the scheme. Each individual of the immense number of plants is a model of the highest cultural skill. Many of the tall spikes of antirrhinums measure over a foot in length each, while the nemesias are studded with flowers. The principal antirrhinums are Old Rose, Buff-Pink and Bronze, of the tall varieties. Mauve Queen, Mauve Beauty, Buff Beauty, Cream, Deep Crimson and Rosy Queen, of the intermediate type. Excellent as are these stately antirrhinums, which first catch the eye, they are surpassed in the cultivator's esteem by the nemesias, whose flowers are exceptionally large and of great depth of colouring. Cherry Red is a brilliant variety, while Blue Gem is almost like a giant forget-me-not. Aurora and Twilight are the names of two uncommon bicolor varieties, the former has red and white flowers, while those of Twilight are mauve and white.



NEMESIAS AND TALL ANTIRRHINUMS COMPRISING MESSRS. SUTTON AND SONS' EXHIBIT

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Generous banks of schizanthus and stellata cinerarias are the keynote of the very attractive exhibit arranged by Messrs. Webb and Sons. The cinerarias are especially delightful and these lead down to plants of the large-flowered type on the ground line. From the profusely flowered schizanthuses spring groups of gloxinias of a good strain, clarkias and Primula obconica.

At the far end of the large tent Messrs. Carter and Co. have a wealth of bloom on magnificently grown plants. There are large mounds of a double, rose coloured clarkia and stellata cinerarias, circles of monster hippeastrums of great merit, gloxinias of many sorts, and Schizanthus Carter's Butterfly. Through the whole length of this large exhibit there runs a most fascinating line of Carter's Queen of the Roses petunia. The gloxinias include such splendid strains as Carter's Spotted, Invincible Prize and Cyclops. Their long-spurred aquilegias and the two groups of Phlox Drummondii, pale salmon and crimson, are equally charming. This large group is bordered by lily of the valley, bearing countless numbers of fragrant flowers, and is flanked by other groups composed of Cinerarias Bouquet Pink, Bouquet Blue and Bouquet Mixed, Spanish irises, schizanthus, nemesias and antirrhinums.

In the orchid tent Messrs. Watkins and Simpson have a large group of schizanthus Dr. Badger's strain. These magnificent plants, in 10in. pots, bear enormous quantities of flowers in a fascinating variety and delightful colours. At each end of the oval group they have placed dwarf floriferous plants of their Salvia Harbinger, which well illustrates its earliness and great garden value.

Quite distinct in type and character is Mr. A. Dawkins' strain of dwarf hybrid schizanthus. These are wonderful little plants about 15ins. high and growing in 5in. pots. They are exceedingly floriferous and embrace every possible shade of colour. Schizanthus Wisetonensis varieties, with exceptionally large spikes of a white stock, probably Snowdrift, are shown by Messrs. Godfrey and Son, while the Blakeney Nurseries Company are showing schizanthus with Coltness Gem dahlias.

This break in dahlias, as typified in Coltness Gem, is a valuable one for all lovers of this fine genus, as the colour is very pure.

VIOLAS & PANSIES

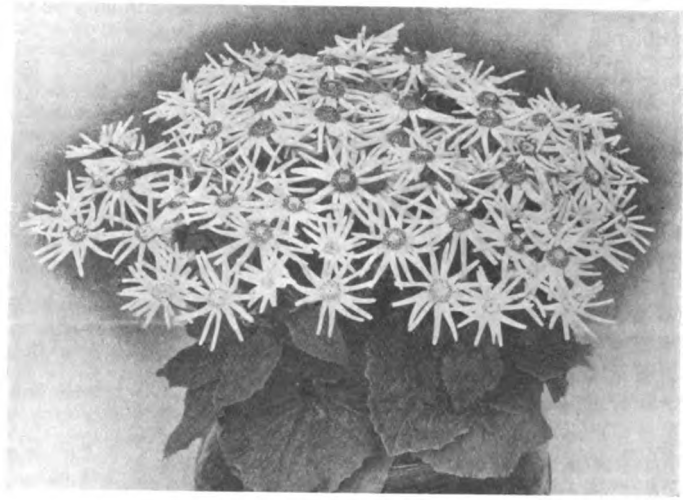
There are no pansies, but violas are represented by two excellent collections, arranged on tabling in the middle run of the large tent. Both collections include varieties with flowers as large and almost as rigidly formal as those of the show pansy, and also the relatively tiny gracilis, which is so free-flowering and of such graceful habit.

Of the large-flowered violas being shown by Mr. Wm. Yandell, one admires Malcolm Miller of primrose colour with heliotrope markings. Rebecca is a deeper yellow shade with similar edgings of heliotrope. Mrs. Milligan is the best white. Moseley Yellow has flowers of very rich colour. Mrs. Mac-Ewan is creamy yellow, edged with purple. Oxhill Purple is a richly coloured flower. Elsie Purser is a deeper and velvety purple. Mrs. Edith Bastock is purplish violet, with light rays. Springwell Bronze is the very best representative of the bronze violas which are always so popular that the supply never equals the demand.

Equally good violas are shown by Mr. H. Clark and his method also shows off the flower to the best advantage. Those especially to be noted include Admiration, dark blue; Archie Grant, deep indigo blue; Baron Newlands, deep yellow, edged blue; Blanche, a large creamy white; Donald McDonald, cream, broadly edged with azure blue; George Callan, crimson marbled with pink; Hunter Beattie, large rose self; Jean Paterson, white, streaked with violet; J. V. Macdonald, pure white; Maggie Mott, soft mauve; Miss A. Norton, large dark purple; Mrs. James Scalley, white edged with blue, and Mrs. Chichester, white marbled with blue.

In association with their well grown double marigolds, Messrs. Artindale and Son placed bowls of violas. The chief sorts were George Macdonald, yellow, lightly flaked with heliotrope; Mrs. Marriston, dark mahogany striped with rose, giving a suggestion of bronze; Mrs. Ben Waid, white, freely striped with deep mauve; and Bessie Ferguson, pale cream, definitely bordered with deep heliotrope.

With their zonal pelargoniums Messrs. Jarman and Co. showed baskets of Viola Purple Red, Mauve Queen, Heavenly Blue, Wyndly Gem, Dainty, reddish maroon with blue.



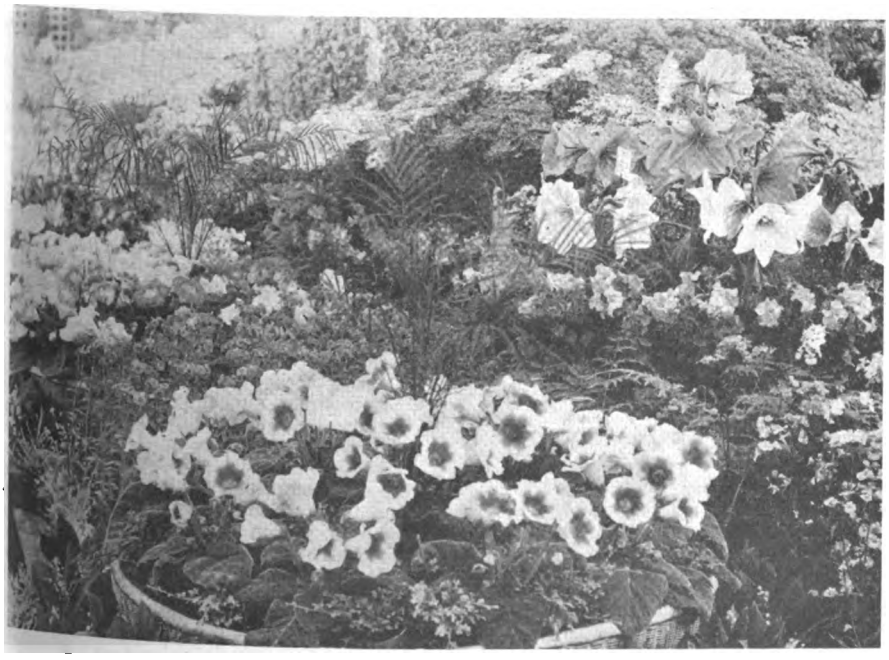
ONE OF MESSRS. WEBB'S NEW CINERARIAS.

CARNATIONS

The growing popularity of carnations is clearly evidenced by the magnificent exhibits put up by the leading raisers of this flower. They undoubtedly add a valuable contribution to this annual commonwealth of flowers, and, although surrounded by a host of many other equally beautiful subjects, yet they take a leading place, which is in no small measure due to their extensive range of colour, their large blooms, and in the varied uses to which they can be put in the garden. Year after year, novelties make their appearance, combined with the improvement of the older varieties, and the attention of the public cannot but be focussed on such floral assets to the garden.

This great advance is illustrated by the extensive collection so admirably staged by Messrs. Allwood Brothers in the large tent. This is probably one of the largest exhibits of carnations ever staged at Chelsea or at any other flower show. The style of the exhibit is unusual, but nevertheless attractive. The perpetual-flowering varieties are grouped in the centre of their exhibit to form a large coronet, and as such is most effective. This group contains a number of novelties, and of those we note Shot Silk, Indian Chestnut, flaked red; Cameron, rose pink; Butterfly, white overlaid claret; and Beauty of Durham, salmon pink. There are, in addition, several of the older and better known kinds, such as Jessie Allwood, which still ranks as one of the best yellows we have. Laddie, of a glorious shade of pink, is also there.

The border varieties, Allwoodii and the new perpetual border forms are set out in beds with grass edgings which enhance their general appearance, although, unfortunately, the fact that the flowers are in vases is only too evident. The most striking novelties are the new bizarre carnations, such as Sussex Flake (blush striped red), Sussex multi (red striped crimson and maroon),



A CORNER OF MESSRS. CARTER'S FINE EXHIBIT SHOWING THEIR GLOXINIAS.

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Sussex Ray (flesh striped crimson-claret). These undoubtedly appeal to many, while others again are better contented with the Allwoodii, in which section they will find Ann, a large double white with a maroon eye; Jane, a large double pinkish mauve; and Roger, of a deep salmon tint rayed maroon. These three novelties show in some measure what a considerable advance has been made in this class. In the old-fashioned border section almost all the up-to-date varieties are on show in their myriad shades of pinks and crimsons.

Messrs. C. Engelmann, Limited, whose fame as growers and raisers of carnations is spreading rapidly, are also staging an enormous and magnificent group which comprises upwards of 10,000 blooms. The exhibit gains much in appearance from its corner situation, and this has been taken advantage of to the full in the general arrangement. The blooms are all exhibited in vases and look exceedingly well with trimmings of asparagus for decorative effect. In the corner stands a magnificent array of blooms of Enchantress Supreme, flanked on either side by the bright scarlet blooms of Tarzan; while Red Laddie, a 1925 novelty with flowers of a rose-cerise shade, comprises the foreground. The huge vases of Nigger also make their appeal and provide a patch of a darker shade which serves to throw up in contrast the beautiful blooms of White Enchantress and the blush pink flowers of Canada, a variety recently registered by this firm. Another variety, Dainty, with blooms of yellow flaked with crimson, also calls for a word of admiration.

Messrs. Keith Luxford are staging a fine collection on a table space in spray vases. Wonder. The green of the decorative foliage considerably enhances the appearance of the stand.

Alongside their collection of greenhouse plants, Messrs. Stuart Low and Co. are staging vases of White Pearl, with Topsy in the background providing good contrasting effects. A dainty touch is supplied by the use of hanging baskets filled with that charming salmon-pink variety, Eileen Low. These flank the other kinds. Sir Philip Sassoon is seen in larger quantities than was the case last year. It has the rich maroon shade and the old clove perfume of the old English clove A touch of lilac pink is supplied by Mauve Queen, while a dash of brighter colour is produced by a pretty fancy variety, Lady Hindlip, with white ground striped carmine.

Mr. James Douglas, whose name is almost synonymous with clove carnations, is exhibiting a large number of splendid blooms. Among the fragrant clove varieties which are on view are Bookham Flame, of a wonderful flame apricot shade; Wonder Clove, carrying huge blooms of brilliant scarlet; Salmon Clove, of a soft salmon shade; White Clove, snowy white; Queen of Cloves, of a delicate shade of lilac rose. The fact that all these clove varieties are hardy in any part of these islands is not, perhaps, so universally understood and appreciated as it ought to be, and their presence in the garden lends an old-time flavour, as well as adding considerably to the perfume of the other flowering subjects. Mr. Douglas also stages quite a number of border varieties, and these, considering the earliness and the general backwardness of the season, are in remarkably good condition.

THREE OF THE NEW SUSSEX FLAKED VARIETIES EXHIBITED BY MESSRS. ALLWOOD BROS.

The fact that the old varieties are still good and also popular is furnished by this exhibit, which contains all these old stagers. Surprise is quite a novelty, however, and is good. It carries large blooms of a fine delicate pink colour. Mikado is there and still holds the fort as regards a good mauve, while Aviator retains its position as one of the best scarlets. Mrs. Walter Hemus is a good pink, and Topsy a good crimson. Among whites, we single out Wivelsfield White and White

That amateurs can put up successful exhibits is evidenced by the one staged by the executors of the late Sir William Cain. The effect is so natural, owing to the grouping of the blooms. Pinks, whites and crimsons mingle together, and give the most pleasant effects. A large group of Souvenir de la Malmaison Princess of Wales calls for attention, although the individual blooms are rather past their best. White Pearl is there, also Carola, a good maroon crimson.

Mr. F. W. Seymour of Finchley stages excellent blooms in vases of such border varieties as Mary Murray, Lady Shackleton, Salmon Clove, Sir Douglas Haig and Steerforth. The whole exhibit, which is well arranged, reflects credit on the exhibitor.

Last, but by no means least, comes Messrs. Lowe and Gibson's table of carnations in pots. The arrangement aims at producing an effect as obtains in any garden. One variety which takes the eye is Joan Wardale, a novelty and a really good rich crimson self. It is rather early in the season to judge of its capabilities, but we should think it is one of the coming varieties. Mary Allwood is there, and is probably the best yellow self there is. The perfectly formed blooms are carried on long stems. A novelty for 1926, Mrs. L. Gibson, reminiscent of Kelso, is most attractive. It is a flaked variety, and is a much better grower than Kelso. Older varieties such as Elaine, Mrs. Nora Cox and Gordon Douglas, are still to the fore and are as yet hard to beat.

HARDY FLOWERS

In the big tent Perry's Hardy Plant Farms exhibit one of their usual splendid collections of hardy ferns, with a suitable and beautiful foreground of cut herbaceous flowers and growing alpines. Besides a considerable collection of fine, if backward, bearded irises, Camassia Leichtlinii var. lutescens, Dodecatheon Meadia and D. Purity, a beautiful, almost golden yellow Moræa species, Trollius Orange Prince and Watsonia Arderni, are specially noted.

Messrs. Storrie and Storrie of "Tiny Seedling" fame, have a circular group of really fine long-spurred aquilegias, polyanthus and alpine auriculas of the free and easy type, suitable for border decoration; altogether a very interesting and attractive exhibit.

On Mr. G. Reuthe's exhibit of varieties we note, among a great number of flowering shrub sprays, the capricious Chatham Island lily, Myosotidium nobile, and the remarkable Beschorneria yuccoides, a rare Mexican succulent, hardy in our more favoured localities.

Messrs. Bees have a well spaced group, containing a wide variety of herbaceous and alpine plants, diversified with brooms, lilacs and other shrubby things. A very beautiful fern, Struthiopteris pennsylvania, occupies a prominent place; lupins, long-spurred aquilegias, candelabra primulas and an exceptionally fine strain of polyanthus occupy considerable spaces, and we noted fine colonies of the rare Primula chrysopa and Incarvilleas brevipes and Bees' Pink, as well as a really considerable drift of the quaint and still rare Roscoea cautleoides.

Messrs. Geo. Bunyard and Sons, in their fine group of bearded irises, include two fat clumps of the double white Campanula persicifolia, known as Fleur de Neige. As a bellflower, this is a wash-out, but considered as a mass of pure colouring, with a spikey—rather viscaria-like—effect, it is worth noting for the early summer border.

Mr. E. Scaplehorn includes in an exhibit, mainly alpine in character, Verbascum densiflorum, the double white rocket and Tritoma aurantiaca.

Messrs. Artindale and Son have a gorgeous mass of colouring in a table group of a very fine form of our old friend the Scotch or pot marigold masquerading under the name of "Ball's Calendula!"

It is yet early in the season for the delphinium, a flower which does not take kindly to forcing, yet the bold group with which Messrs. Blackmore and Langdon flank their splendid begonias is built up of plants admirable in form, colouring and stature. An immense and perfect spike of the heliotrope

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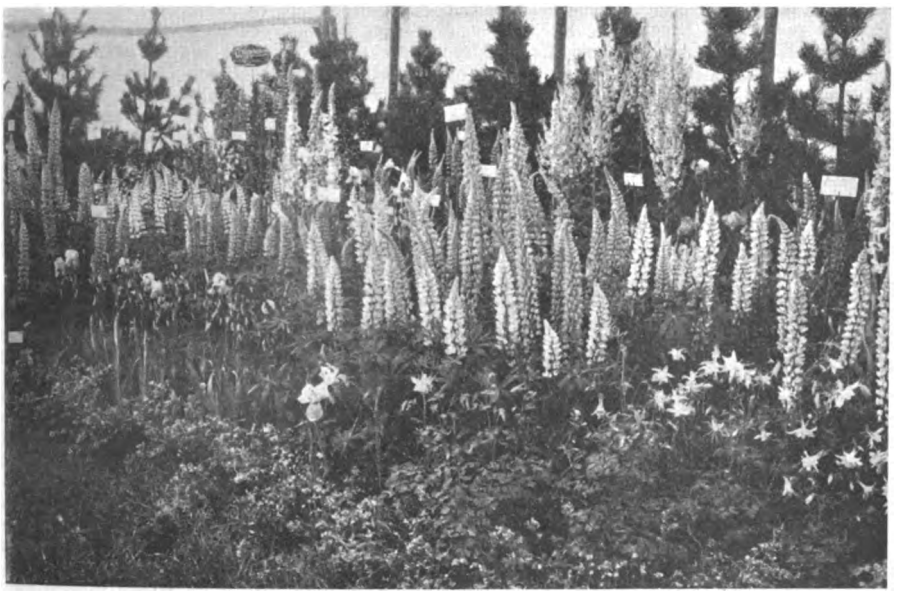
Mrs. A. J. Watson dominates the exhibit, while Mrs. Townley Parker, Nora Ferguson, the azure Constance, and the puce purples Mrs. Colin McIver and Lord Derby are among those specially worthy of note. Fairy Queen, which has been relegated to a back corner, is a fascinating thing which can best be described as a clean pinkish lilac with a dark brown "bee."

Messrs. G. Gibson and Co. have a group largely alpine in character, but containing such border favourites as Thalictrum culture, and their giant form of P. Littoniana is a giant indeed, and a drift of a couple of dozen plants on their tabling is as remarkable a sight, in its way, as anything to be seen at Chelsea. Among a group of gaudily coloured candelabra primulas the soft yellow P. sikkimensis looks delightfully cool, as do plants of the hardy maidenhair, Adiantum pedatum.

Mr. G. W. Miller in a rather congested group shows some well flowered if rather loose-pet alled polyanthus.



LUPINS AND HERBACEOUS PLANTS SHOWN BY MESSRS. WATERER, SONS AND CRISP.

aquilegifolium purpureum, Anchusa myosotidiflora, Ranunculus speciosus plenus and R. aconitifolius fl. pl.

Messrs. Maurice Prichard and Sons have a fine bank of herbaceous stuff in which named groups of the Bartley strain of pink Primula pulverulenta play a prominent part. A gigantic hybrida primula, obviously of pulverulenta kin, but of a glowing cardinal red toned with terra-cotta and called George Thursby is another notable feature of a group which includes excellent lupins, trollius and camascias, Dielytra spectabilis and other desirable things.

The adjoining group by Messrs. John Waterer, Sons and Crisp displays most effectively Anchusa italica in the varieties Opal and Pride of Dover. Many fine herbaceous lupins, including the well named Dresden China, the violet-purple Happiness, Opal in delightful lavender tones, the deeper coloured Penelope, the blue and white Mayflower, Pink Pearl, Delight and the Sunshine, the last named a good yellow of the Somerset clan, but a great improvement on that now out-dated variety. Mulleins, too, are well represented in this exhibit, these including Verbascum densiflora and the pale buff apricot W. Walker. Trollius and long-spurred columbines are also well represented.

The Chalk Hill Nursery show some of their specialities on the cross-staging. These include fancy pansies, a few violas, the Chalk Hill giant mimulus (a very useful and brilliant flower for wet borders or waterside), candelabra primulas and long-spurred columbines.

The adjoining contribution from Messrs. Bakers is mainly alpine, but Incarvillea grandiflora, the inevitable bog primulas, including in this case helodoxa, Thalictrum aquilegifolium, lupins and columbines will hardly fall into this category.

Messrs. Oliver and Hunter find their cool Scottish climate favourable to primula

Messrs. Reamsbottom display their wonderful strain of St. Brigid anemones with an effective background of black velvet and interspersed with fern.

Messrs. B. Ladhams, Limited, have all sorts of unlikely things, such as Nepeta Mussini, the old red double daisy and Spanish squills arrayed in baskets.

The Maytham Gardens have a veritable spring border planted with peonies, campanulas, irises and so forth, but the juxtaposition of auriculas, bog primulas and bearded irises does not seem a happy one.

Messrs. Sutton's great group of flowers from seed includes the finest lot of snapdragons (antirrhinums) ever seen at Chelsea.

All the forms of the Welsh poppy, Meconopsis cambrica, combine to make a drift of orange and lemon on the table space occupied by Messrs. W. H. Rogers and Son, Limited, and healthy plants of Primula helodoxa and, once again, of the Bartley strain of Primula pulverulenta lend diversity to a fine group mainly consisting of rock plants.

The Blakeney Nurseries have quite a bank of that brilliant bedder Dahlia Coltness Gem.

Mr. T. Carlile has an early summer border, containing a good variety of lupins, with Pentstemon Bridgesii, Geum Heldreichii magnificum, globe flowers, thrifts and so forth. Groups of small plants of various brooms are introduced to lend variety, and, where labour allows, small plants of such flowering shrubs might be used (plunged in pots) to fill spaces left for later flowers.

Messrs. Hewitt are showing irises, tulips and a few early spikes of their famous strain of delphiniums. One of the finest of the delphiniums is a splendid deep blue shaded with purple called Evening; another particularly rich lilac is King Bladud; while there is a magnificent white called Mrs. Christie Miller These fine delphiniums are noted for their grace.

Messrs. Rich and Co. are staging a small exhibit of excellent quality of tulips, Sunbeam poppies and violas.

Mr. John Forbes has a fine exhibit of East Lothian early stocks. This is a famous strain, the colours are vivid and good. He is also showing the fine Dahlia Coltness Gem, Statice Butcheri and violas along with a fine form of Primula Sieboldii.

DAHLIAS

Considering that we have, as yet, hardly passed the middle of May, Messrs. Carter Page's circular group of dahlias in the big tent is a thing to wonder at. If things progress at this rate, we shall all be growing dahlias for conservatory decoration, instead of Malmaison carnations. The decorative and pompon sorts are most successful and the plants of Barlow's Bedder, Glut, Vrijbuiter, Crimson Flag, all crimson or scarlet decoratives, and of the self-descriptive pompon Chamois Rose, are especially noteworthy but brilliant "Mignon" Coltness Gem, the collerette Scarlet Queen, and, indeed, representatives of almost every section, are to be found here in fine form.

Messrs. J. Cheal and Sons also have quite a collection on staging on the other side of the great tent, but for the most part this takes the form of cut flowers. The Mignon and Star forms are here well to the fore, including such well tried favourites as White Star, Cuckfield Star and Ifield Star. Quite presentable vases of the Cactus sorts, Mrs. F. Paton, Sweetbriar and Mrs. E. Lowes, are also noteworthy.

GLADIOLI

The day is not yet, apparently, when the gladiolus will emulate the dahlia and become a spring flower. A vase of a variety of apparently primulinus origin, a shade or two paler in colour than Fire Queen, and shown by a Dutch firm towards the bottom of the great tent, and three or four nice spikes of primulinus hybrids on Messrs. Lowe and Gibson's border carnation exhibit, are, barring two or three vases of the Colvilei section in Mr. E. Scaplehorn's plant group, the only representatives of the flower on view. The Bishop, Lovely, Joy Bells (all heliotrope as forced) and Coquette particularly attract attention of this set, while the older King Bladud and the almost amethystine Lorenzo de Medici are equally effective in their way.

ROSES

The exhibit of Charles Turner, Slough, consists very largely of forced dwarf, half standard and standard roses, some of them hardly ready for exhibition, as the earliest flowers are not expanded, but all fresh and interesting.

Messrs. A. and C. Allen have a much showier group, which, unkind weather conditions notwithstanding, is quite "up to the knocker" for show day. Fine specimens of the coral pink Havering Rambler suggest a fully double Coquina, but makes a stronger appeal than that rather sleepy-eyed sort. The yellow Mrs. Beckwith, the pink Souv. de Georges Pernet, very pretty as forced, and the ubiquitous Ophelia, are noteworthy in a most attractive group.

Mr. Elisha J. Hicks' great bank of roses is another treat in store for every visitor. The backing includes great masses of growing ramblers, such as Paul's Scarlet Climber, Tausendschön, White Flight, and the Blush and Crimson Ramblers, the last named many degrees off its normal outdoor colouring, but the others wonderfully true to colour-tone. A fine group of plants of America at once catches the eye in the

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foreground, as do two pillars of cut flower, the one Mme. Butterfly, the other the beautiful white Mrs. H. Stevens. A basket of giant blooms of Clovelly is another outstanding feature, while Molly Sharman Crawford is also wonderfully well shown. These, however, are but a few of an immense and exceedingly interesting collection of varieties in a capital effort.

Messrs. Benjamin R. Cant and Sons, Limited, have a relatively small bank containing a fine group of plants of the golden Souv. de Claudius Pernet, two new seedlings, the deep citron Mrs. Beatty, which is delightfully fragrant, and Lady Wakefield, a pretty copper apricot sort which, as far as the flower is concerned, reminds one of Mrs. A. R. Waddell. Columbia and the new polyantha Orange King are also to be seen in good form.

The Rev. J. H. Pemberton occupies a length of tabling with a very taking group of, generally speaking, dwarf polyantha varieties. The pale salmon pink Julian, Henry Nevard will be too blue a crimson for most folk's liking, but Mrs. Wemyss Quin and Lady Roundway are surprisingly good. Standards of the brilliant polyantha La Reine Elisabeth lighten and brighten an interesting group.

Mr. George Prince has a nice little table group, containing such tried if not old, varieties as Columbia, Mme. Butterfly, Hoosier Beauty and America. The fine polyantha Coral Cluster is well shown; so, too, is the grand old Banksian Yellow; while the new and fragrant blackish crimson rose Sensation and the golden Souvenir de Claudius Pernet occupy a position of honour.

Messrs. Ernest Paul have a small collection of roses among their exhibit of tulips. Many of the well known varieties, such as Covent Garden, Golden Ophelia, Molly Sharman Crawford, Richmond and Butterfly are exhibited.

Mr. W. Paul has a large collection of roses. Standard Mrs. H. Morse and Richmond are shown. A small bright red dwarf polyantha,

SOME OF MESSRS. ALLEN'S ROSES.

Corrie Koster (which is decidedly paler and has a better flower than Orange King), the starry, bright-eyed Chatillon Rose and the semi-single White Echo with blossoms 3ins. across share honours with Baby Faurax, the most endurable "blue" rose we have so far encountered, the brilliant crimson-scarlet Topsie, Ellen Poulsen and the shell pink Pink Echo, a counterpart of White Echo to which reference has already been made.

Messrs. William Cutbush and Sons have their usual fine array of dwarf polyanthas with fine specimen weeping and other standards to diversify the group. Salmon Queen, Chatillon Rose, Ellen Poulsen and the nearly blood red Superba are shown in capital form. A climbing polyantha known as Red Explorer and shown in pillar form should not be overlooked.

Messrs. Frank Cant and Co. have a nice bank of quality roses. Captain F. S. Harvey Cant is shown in good form, so is the velvety crimson Lord Charlemont and that most gorgeous of golden roses, Mabel Morse. named Ideal, is a good variety. Paul's Scarlet Climber, Rev. F. Page Roberts and Golden Ophelia are much in evidence.

FRUIT AND VEGETABLES

Probably the most tempting display in the whole show, especially in these hot days, is that provided by Messrs. Laxton Bros., of strawberries in pots and also gathered fruit. They do make one's mouth water with expectancy. Among them are to be found many of the older varieties, such as Titbit—a 1924 variety of good size and flavour—The Duke and Abundance. There are three new strawberries, however, which call for a word. Robust, as its name implies, is a robust grower, ripening in mid-season. It is a fine fruit of good size, colour and flavour. Another excellent new introduction is Laxton's Empress, which may be regarded as an improved Vicomtesse. The fruit is firm, an excellent asset for preserving and for dessert. Number three is called Laxton's Rearguard, no doubt on account of its late fruiting properties. It is a cross between Laxton's Latest and Omega, and surpasses its parents in colour, crop and flavour. It appears to be of excellent constitution. This exhibit altogether is a very fine one considering the backwardness of the season and the lack of sunshine which has been experienced throughout the country.

Messrs. Rivers and Son, Limited, are staging their usual large collection of fruit trees in pots. Peaches, nectarines and plums are to be seen all heavily laden with fruit, such varieties as Peach Duke of York, and in nectarines, Cardinal, Early Rivers, John Rivers, and Blue Rock in plums are noticeable. The fruiting capabilities of some of these varieties exhibited are beyond question.

A fine exhibit of raspberries is staged by Mr. V. C. Vicker of Herts. Here again one wants to linger in the hope that a fruit may chance to drop and so satisfy one's curiosity regarding its flavour. Well fruited bushes of the new raspberry Viking are staged. This is an excellent forcing variety, as is also the new yellow fruited variety, Amber. The arrangement is good as the fruiting capacity of the bushes is well shown.

Another amateur with a fine exhibit is the Hon. Sir John Ward of Hungerford. Here we have luscious bunches of Black Hamburgh and Foster's Seedling. These are well formed bunches with the individual fruits of medium size. Strawberries are also present in two varieties, Royal Sovereign and King George V, while peaches and plums are also represented by Hales Early and Early Rivers.

From the Aldenham House gardens there comes once again a very fine exhibit of high-class vegetables. Mr. Edwin Beckett has once more excelled himself, if that can be possible, in the production of this wonderful collection of vegetables. How every amateur must sigh to be able to produce such well grown varieties of each of our staple food crops. Every vegetable dish appears to be represented and although it has been said many times before, yet once again must we offer our congratulations to Mr. Beckett, both for the high standard of excellence reached in cultivatio and for the arrangement of his group.

A comprehensive collection of potatoes, consisting of between thirty and forty varieties is staged by Messrs. Sutton and Sons. Among these varieties can be noted splendid dishes of Sutton's Early Market, Sutton's Epicure, Ben Lomond, Stirling Castle, Carisbrooke Castle, etc. An exhibit of potatoes so early in the year is both interesting and instructive, as it serves to show what may be accomplished in the production of such a valuable food crop.

Apples are again in the capable hands of Messrs. Bunyard, who stage a fine array of many excellent varieties in baskets. The high quality of the fruit shows how the question of storing is of such importance. Above all, a cool and stable temperature is required. Such varieties as Barnack Beauty, Sir John Thorneycroft, Ontario, Wagener and Jonathan, are there, and all in excellent condition.

Our front cover is taken from pinks kindly supplied to us by Mr. C. H. Herbert.

In next week's issue we shall publish detailed comments on Rock Plants and Primulas, Stove and Greenhouse Plants, Orchids, etc., and Garden Sundries, with descriptions of New and Rare Plants.

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No. 6

The Cricket Club Secretary

Ugbrooke,
Chudleigh.
S. Devon.

April 1,24.

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G. Hammick

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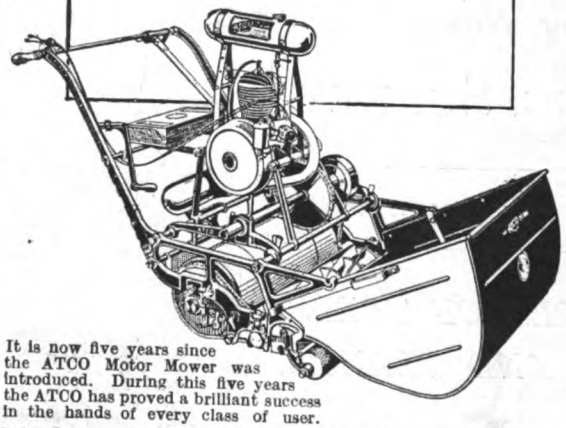

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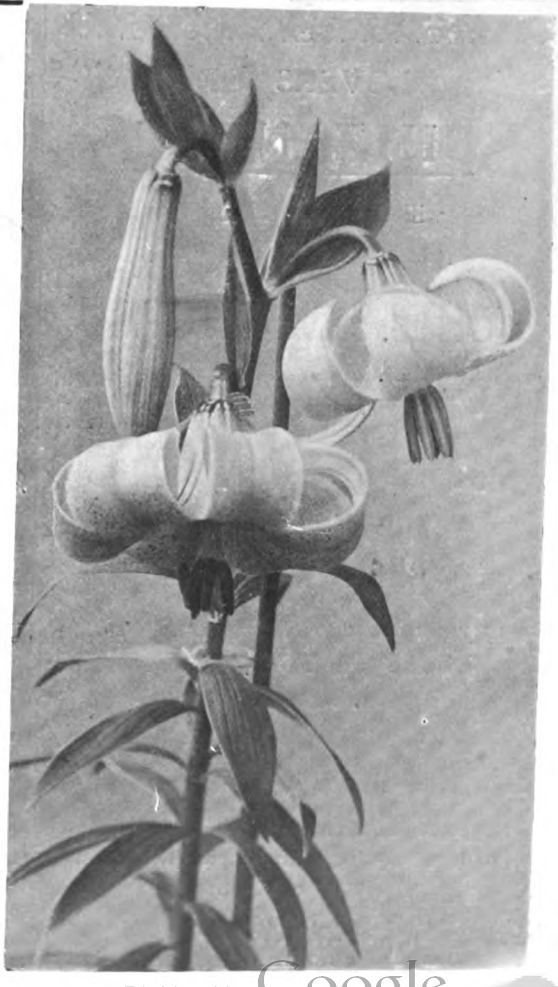

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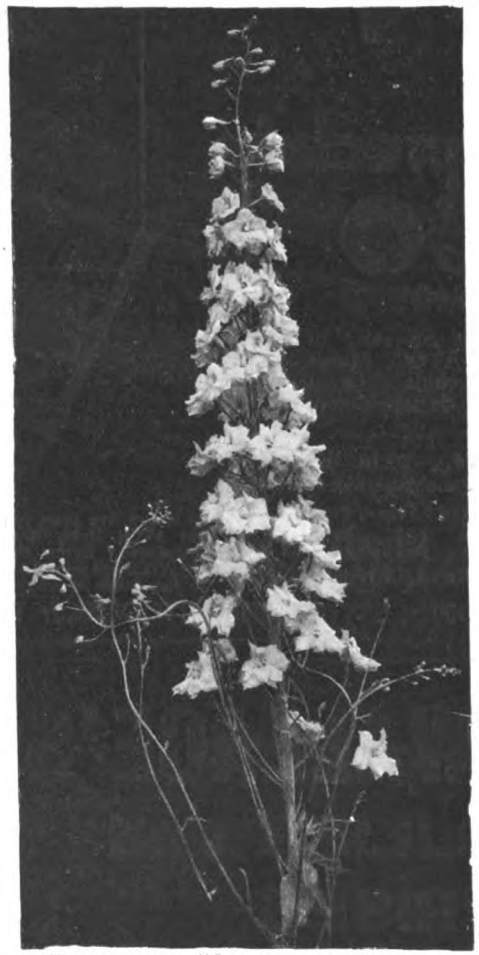

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MELON CULTURE

IF we were living in certain parts of the United States it is doubtful whether notes on melon culture would have any utility, for the practice seems to be that of sowing seed on mounds of soil, and just waiting for the fruit to appear, and they certainly grow a vast quantity, being, I should imagine, one of the principal melon consuming nations in the world. In the British Isles, where climatic conditions are considerably different, it is another proposition to grow melons with the most complete success, and decidedly a more expensive matter in these days of dear fuel, but a good crop of well grown excellent fruit is a sure reward to those who undertake the task. With a view to assisting those who wish for success with this luscious dessert, it is as well to remark that it is not advisable to attempt to grow melons at the same time, and in the same structure as cucumbers, which is often done, for, although cultural methods are closely allied, yet, atmospheric conditions for the two fruits require to be different. Both are species of the same genus (Cucumis sativa, the cucumber, and C. Melo, the melon), but one is eaten as a ripe fruit, while the other is a green salad, hence the call for differing atmospherics.

The melon, which was introduced to this country about the year 1570, is a native of Asia, in particular the Himalayan regions, and this fact has an important bearing in its culture, for, exposed to the strongest sun in its native haunts, it will be understood that even when raised under glass in this country, the temperature and strong sunlight will not adversely affect it, and therefore shading under such conditions is not necessary, although this is frequently done. Even the heavy moisture which is prevalent in the atmosphere at certain stages of its growth is not inimical to it, for such stagnant humid heat often prevails in the regions from whence it comes. There are many different forms of the melon, but in the present notes we will only consider the generally cultivated forms, raised and in general use in this country. The great aim in the growing of this fruit should be to keep the atmosphere as buoyant as possible at all times, and when it becomes too heavily charged with moisture, then careful and attentive ventilation should be carried out, in order to correct this.

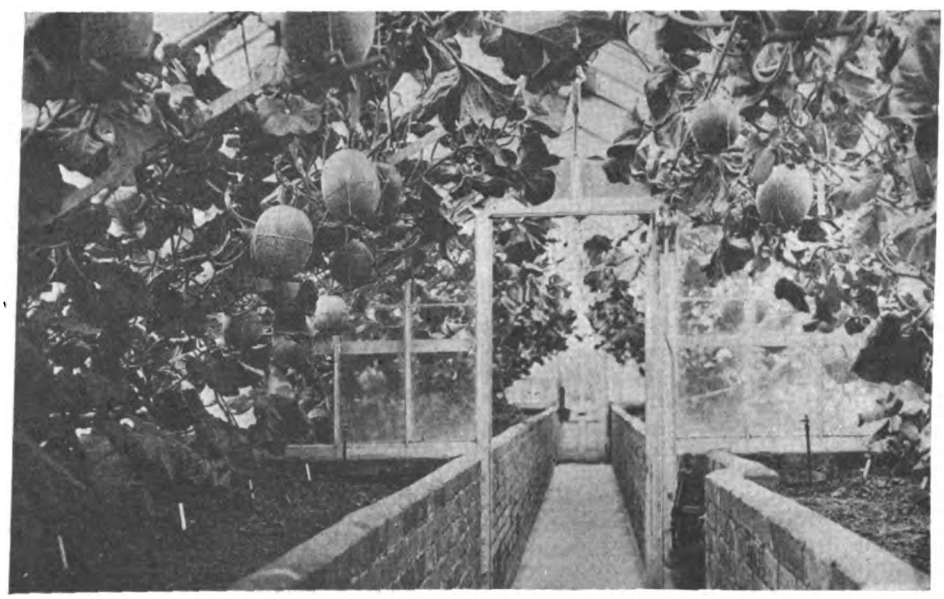
A start should be made by raising seedlings at the end of February or beginning of March, placing one seed in a good turfy mixture, in 2in. pots, and placing on a bed where bottom heat is prevalent, to germinate. The temperature for this should be between 70° and 75°, and once germination has taken place, then the young plants, throughout the rest of their career, should never be permitted to become dry at the roots, though watering will have to be controlled at various stages of growth, more being required at certain times than at others.

The bed should be prepared for planting into in March, and the compost should comprise three parts good turfy loam, one part well decayed horse manure, two parts clean road grit or sand, and half a peck of crushed charcoal to every barrowful of this mixture. The sand is a most important ingredient, for the aim should be to maintain the bed in a sound condition throughout the life of the plant, and this can only be done if the bed is properly porous.

Training is often a matter of controversy. Some growers like to pinch out the points when 6ins. high, and aim for two growths, but I prefer the one growth throughout, tying this carefully to the trellis wires for support. When the plants flower, hand fertilisation is necessary, removing the male flowers to fertilise the female ones, and once three or four good fruits are set, I look on this as being the correct burden for the plant to carry. All the growths which follow should be stopped, and it is advisable not to do this all in one operation, as it will probably prove too severe a strain on the plant. Dry air is essential during setting, and slight ventilation should be given during the whole of this period. Lateral growths should be stopped at a joint beyond the fruit, and not more than one fruit allowed to a lateral growth. Watering should be sparingly carried out at the start, but may be more freely done once swelling begins. When ripening commences, too much water is harmful and air becomes important again at this stage. Syringing should be done twice a day, both before and after fruit setting has taken place, to assist growth and to keep down the harmful red spider, which will attack the foliage if the atmosphere is too dry. The floor of the house should be well damped down to assist in these matters, but again cease these two operations when ripening commences.

The fruit should be supported from quite a small size, and for this either nets or boards can be used, the writer's fancy turning to small squares of deal, tied at the right levels properly to support the fruit, by strong string to the trellis wires. At the ripening period cracking round the stem of the fruit will denote the time to remove from the plant, for completing the process off the vine in the drier atmosphere of a fruit room.

One point that should be noted as advantageous is to do the fertilising of the four fruits, or as many as it is decided to permit the plant to carry, at the same time, so that all start comparatively equal and thus do not handicap each other. Cutting out should also be carefully regulated, for wholesale slashing out of superfluous growths will probably assist that dreaded melon pest, canker, to get a hold, and the plants should be carefully handled in the early stages, as the disease is possibly permitted to affect the plant through a scratch or knock to the stem, aided perhaps by heavy, incorrect atmosphere and insufficient drainage of the bed.



MELON FRUITS SUPPORTED BY MEANS OF NETS AND BOARDS.

To aid the swelling of the fruit, weak liquid manure may be given to the plants, changing occasionally with a reliable fertiliser, and alternating with the applications of clear, tepid water. All liquid applied should be of a temperature approximate to that of the bed. Cold, chilling water should never be given as it checks the plants badly.

Melons may be successfully grown in heated pits and frames on hot beds, and for the latter purpose the bed should be made up, about a fortnight before planting, of fresh fermenting material, such as long stable litter and suitable leaves mixed. In this method of growing it is preferable to allow the plants to wander loose on the bed, training and setting, as well as handling generally, in the manner approved for culture in a house. The fruits can, in this case, be laid on a tile

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or slate, using means to prevent them from rolling as they grow.

Those wishing to continue the supply during autumn and winter should raise a batch of seedlings about mid-June, to take the place of the other plants as their fruits mature, and they are past their stage of use, but I do not think that melons that ripen during late autumn and early winter are really worth the trouble that has to be bestowed upon them.

There are many good varieties of melon, but I still look on the old Hero of Lockinge, a white fleshed variety, as the very best we have. A good green fleshed variety is Emerald Gem, which has unusually thick flesh, of excellent aromatic flavour. Four scarlet fleshed varieties appeal to me as being ahead of the others, and they are King George, a strong growing form with very thick flesh and heavy weight; Superlative, a medium sized variety, of very rich flavour; Blenheim Orange, with deep, solid flesh and thin, even rind; and Reed's Scarlet Flesh, another variety of very fine flavour. EDWIN BECKETT.

PLANT PROPAGATION IN THE TROPICS

BY DR. R. J. D. GRAHAM.

"IN TROPICAL REGIONS VEGETATIVE PROPAGATION IS AS YET BUT LITTLE EXPLOITED."

A FEW weeks ago it was my good fortune to hear the presidential address to a horticultural society. The subject chosen was plant improvement, and there was an indication that such work was peculiar to the West and was practised but little, if at all, in the East. My mind turned to what I had seen in the vast rice fields of India with the multitude of different kinds of rice cultivated there. Each rice bears its own native name, and the different kinds are each recognised by head marks known to the cultivators. Seven hundred vernacular names in one province and over a thousand in another indicate considerable skill in plant breeding. In no agricultural crop in the West has breeding work been carried to such a point. One has to turn to roses, sweet peas or some other garden favourite to get anything at all approaching the fine points of distinction which differentiate one rice from another. Such intensive plant-breeding owes nothing to the West. It is an indigenous product of India, its origin lost in the mists of the past. Plant improvement in the West has found its highest expression in horticulture, attention having centred on the development of form and colour. In the East the needs of the inner man have forced attention to one of the staple food crops, establishing an even richer number of types.

The quotation standing at the head of this article appears in the printed abstract of one of the papers read at the Imperial Botanical Conference last July. Again the mind is led back to what one has seen in India. Without claiming any superiority, but as an instalment towards the debt due to the chance that carried one abroad, the quotation may serve as a text to a survey of things as they are in the fields and gardens of India.

Sugar-cane is a reed-like grass which grows to a height of 10ft. or 12ft. One group of canes includes all the thick canes, while the thin canes form a separate class. Within the two classes there are numerous varieties. Some canes flower annually, others but rarely, and in either case very little seed is ever obtained. The millions of acres of canes necessary to sweeten our lives are all grown from cuttings. True, there was a dear lady once who thought thick canes were grown from loaf sugar and thin canes from castor sugar!

Sugar cane, like potatoes, is often cited as an example of a plant which deteriorates through continued vegetative propagation. Recently much work has been done in the West Indies and in India in raising seedling canes. There is no doubt about the need of disease-free canes, just as there is no doubt about the need of immune potatoes. One is tempted to suggest another source for the deterioration when the cultural conditions meted out to either crop are considered. Both sugar cane and potatoes are, to all practical purposes, grown upon manure. May it not be this over-cultivation which is the root of the trouble? Over-cultivation lowers the resistance of both plants to disease, and disease is followed by deterioration.

THE METHOD OF PROPAGATION KNOWN AS MARCOTAGE.

Another crop of the tropics raised continually from suckers is the banana. Seed is rarely produced in the cultivated races of banana, and when unexpectedly found stands little chance of being saved for sowing. In my wanderings I have only once met a man who chanced on a seed of a cultivated banana. A broken tooth had obscured the scientific value attaching to the discovery. Without vegetative propagation in the tropics the answer to the popular song anent bananas would be true. The banana may well be held up to those who see evil inherent in vegetative propagation. From the earliest records, so far as one can learn, the banana has been continuously and successfully raised vegetatively.

Tapioca or cassava from Manihot utilissima—a near relation of a rubber-producing tree-arrowroot from Maranta arundinacea—with vanilla and ginger to flavour them, are propagated by division. Yams and sweet potatoes, poor substitutes for the real article, are grown from cuttings of the vines or from tubers.

Turning to fibre-producing plants, we find the yuccas and the agaves in India propagated vegetatively, as also is the bow-string hemp, Sansevieria zeylanica, and the ramie fibre plant, Bœhmeria nivea, used nowadays for incandescent gas mantles.

Nor is the Indian fruit-grower behind his Western brother in skill in his craft. Though fruit trees can be grown from seed in India as at home, recourse to vegetative propagation is made to secure earlier maturity and consistent quality of fruit. Among the fruit trees of India perhaps the best known is the mango, through its association with native conjurers and Indian chutney. The best varieties of mango are invariably perpetuated vegetatively. The commonest method is by grafting by approach or inarching on to seedling mango stock, but grafting is also carried out. The guava, a fruit possibly more popular in the form of jelly than in the fresh state, is best propagated by layering. The orange is propagated by budding except in Assam, where trees bearing good oranges are raised from seed. The owner of an orange grove knows the uses of various stocks for his orange plants and will discuss the advantage of sweet lime over sour lime or sweet orange and sour orange as alternative stocks. The lichee, a Chinese fruit now cultivated largely in certain parts of India, is propagated by a gootee, which corresponds to the form of layering in a pot or ball of moss called marcotage in this country.

The custard-apple and the bullock's heart or sweet sop are raised from seed; but the loquat is grown either from seed or by grafting. The rose-apple, Eugenia Jambos, is layered; and the jujube, Zizyphus Jujuba, is grafted; while the sapota or sapodilla, Achras Sapota, is in-arched like the mango. Sub-tropical and temperate fruits such as the fig, pineapple, apple, pear, mulberry, vine, plum, peach, strawberry and loganberry, are raised in India in much the same way that they are grown in this country.

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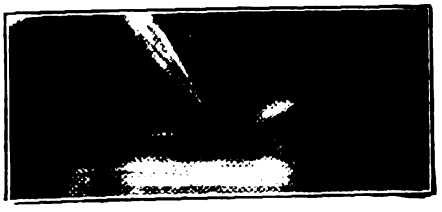

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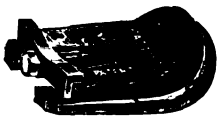

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Fig. 2. Welted Boot.

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In garden practice the native gardener or *mali* uses all the wiles of his Western *confrère* to perpetuate plants which are shy seeders or which do not come true from seed. Cuttings are made where the subjects lend themselves to treatment in this way. Plants too tender to be treated in this manner are layered, but the method dear to the *mali's* heart is the gootee. In the rains it needs no attention, and, being a method of propagation little known to many Europeans, creates an interest in the *mali's* work which pleases him, and which may produce a tangible reward in the way of *backsheesh*.

The Arab in Mesopotamia is another exponent of the value of vegetative propagation. The date palm is almost always raised from offsets. True, the date contains a viable seed which, if sown, will give a date palm. The Arab applies to this the same term as to weeds, for the seedling palm is slow to fruit, and when it does eventually do so the dates are not the same as those of the parent tree. Many of the seedling palms will turn out male trees, bearing no fruit at all. The pomegranate is grown from cuttings, as also is the mulberry, to cite but two examples from the many which could be mentioned from the trees in the gardens of Eden. The olive trees in the north of the country are grown from cuttings, as also are the white poplars planted in woods in the valleys of the Kurdish hills. So rapid is the growth of the poplars that the Turks taxed the plantations after the fifth year.

Thus we have, then, in the East and in the West the same methods of plant improvement practised. Generally the methods have been developed independently, but at times one can see an influence of West on East or East on West. The methods have been applied both in the East and the West as the needs of the peoples have directed. Seed selection has been applied to food crops in India, and the cultivator will tell which rice digests most slowly because by sowing it he will only have to eat once in the day. Fruit trees have been the object of special attention, and here vegetative propagation has been exploited by native methods differing in no respect from those used at home. That white settlers and planters have not applied these methods to economic crops which they grow is no ground for imagining that the native has similarly failed.

FRUIT PROSPECTS IN 1925

FROM the point of view of fruit-buds and blossoms, it is many years since the fruit prospects were brighter than they are this year. Though many factors have to be considered after a plentiful supply of fruit-buds and later the bloom before a crop is assured, yet without this all others would obviously be useless for the year. There is therefore good reason to be hopeful about this year's fruit crops.

Plums, the latest varieties of which are in bloom here (Berkshire) as I write (May 9th), have been a wonderful sight.

Apples, the earliest varieties of which commenced to unfold their blossoms this week, fully ten days later than usual with us, are for the most part crowded with healthy flower-buds, and in a week or two should present a fine sight. Cherries, locally, appear to be flowering profusely. Pears by general consent are the least promising of the kinds named. It appears, however, to apply more to trained trees than to large standards. Trees on walls and fences are only blooming moderately, but the bigger trees in the open are much better, many trees being laden with flowers. Peaches flowered well in this neighbourhood, and have generally set good crops. Apricots, which are not, perhaps, so much grown now as some years ago, probably owing to the trees' bad habit of losing branches, are moderately cropped. Optimism prevails over bush fruit. Gooseberries, black and red currants are most promising, and the same applies to raspberries.

A close inspection of the strawberry quarters reveals a more cheerful prospect than was the case at one time. The plants did not look any too well during the continued wet weather of the winter and early spring, but they seem to have come along wonderfully this last month, and good flower-stems now appear fairly plentiful.

Though, as previously mentioned, flowers are of first importance, every grower of experience is aware that it is too early yet to count his chickens. There are the vital factors of pollination and weather to play their part—for or against—and the latter has a great bearing on the former. Pests, too, are always more or less liable to reduce a crop, but can be generally combated by watchfulness and application. Pollination is linked up with the period of blooming, since many varieties of apples, pears, plums and cherries have long since been proved to be sterile to their own pollen. Where mixed varieties are grown the danger of fruit not setting is, of course, very largely minimised. To ensure a set in such cases it is necessary to have other varieties blooming at the same time and the weather favourable for pollination. Honey bees, humble bees, other insects and wind will do the rest.

A close inspection of the plums gives one every reason to expect a good crop, for many varieties appear to have set. It is too early to be unduly optimistic. The weather, which plays such a big part in the setting, and raises or lowers the hopes of fruit-growers according to its vagaries, has up to now not been so bad. True, we have not had any very genial, warm days, and we have had slight frosts on several occasions, but against that is the fact that for the main part it has been dry, with, at any rate, occasional spells of sunshine. I have carefully noted the activities of the honey bees, and at every sudden spell of sunshine, be it ever so short, they have appeared on the trees as if by magic, and were worthily upholding their character as busy bees. In their absence we have had the valuable assistance of humble bees, who are, fortunately, less particular as to weather. Very heavy hailstorms have been experienced in some localities, and in such places there must be apprehension as to the safety of the plum crop. On the whole I shall be somewhat surprised if the plum crop is not a good one and very possibly a bumper one.

Apples are flowering much later than usual. Records prove that many popular varieties, such as Cox's Orange Pippin, James Grieve, King of the Pippins, Worcester Pearmain, Bramley's Seedling, Lord Derby, Pott's Seedling and many others have been in full flower here between the dates of April 30th and May 10th. This year not one of those varieties has so far expanded any blooms with us, though, of course, a few fine warm days would bring about a transformation. In our fickle climate we never know when a catch frost may not come and do untold injury.

A careful watch for pests has not revealed anything serious to this date. A few caterpillars of the winter moth and aphides have been noticed on plum trees, with the addition of a few suckers on apple trees. This comparative freedom from attack may be largely due to grease banding and winter spraying with egg-killing washes. Last year fruit trees were wonderfully free from insect pests, following an unprecedented attack in 1923. Is it too much to expect a repetition of last year's comparative scarcity? No time should be lost in spraying the trees whenever the pests named are observed, providing the trees are not in bloom. This precaution is important, since, to be effective, a poisonous spray—such as nicotine or arsenate of lead—will have to be used for caterpillars and apple suckers, and the danger to our friends the bees when visiting the open blossoms of trees so sprayed would be terrible. The apple is subject to more pests than other fruits. In addition to those mentioned, the caterpillar of the codling moth, commonly known as the apple maggot, can do untold damage if present in numbers and unchecked. This moth lays her eggs in the eyes of the fruit, generally one to each fruit. As each moth may deposit over a hundred eggs, and these in turn produce as many caterpillars, and as each if allowed to continue its life would enter one apple, which it would partly or totally spoil, it does not need much imagination to realise the possible effect of this pest on the apple crop. No time should therefore be lost in spraying after the blossoms have fallen.

Gooseberries and currants are often injured by aphis much in the same way. This troublesome little pest invariably attacks the youngest part of a shoot, viz., the tip. It is often possible to control them by dipping the points of the shoots into a pail of insecticide, and is much more economical than spraying the whole tree.

In districts where late frosts are liable, the early blooms of strawberries are often ruined. In gardens it might be worth while strawing the plants early and netting the beds before the earliest and best blooms open. ARTHUR J. COBB.

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SIMPLE GARDENING

SUMMER SALADS.

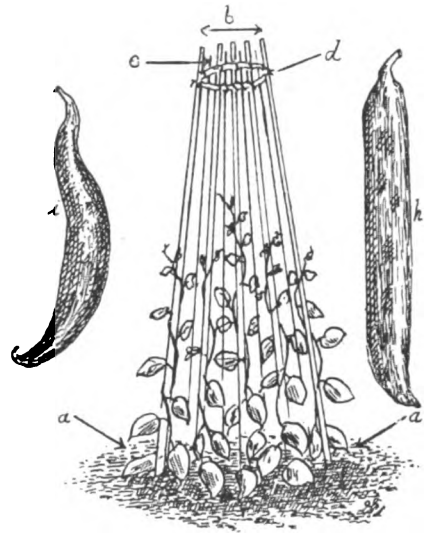
WINTER and spring salads cannot be grown very successfully without the aid of frames, at least, and to secure a good succession and variety, heated structures are necessary. Salad plants like heat, but they fail to do well unless there is sufficient moisture as well. Given these conditions it is not difficult to grow good salads in the summer. But, unfortunately, such conditions do not obtain every year, so the cultivator must, then, make them artificially, as it were. The plants must be quickly grown to secure that fresh, crisp, succulent condition so much desired. Celery is always welcome, for flavouring as well as for eating. The earliest sticks may be grown in a frame. After clearing away winter and spring tenants, rather than allow a frame to remain empty, make up a bed of rich soil 1ft. deep, plant celery 1ft. apart, feed regularly and blanch by tying paper round the stems. Keep on the glass lights during the first few weeks to draw up the plants. Lettuce should be planted in a deep, rich soil, while quite small. It is a good plan, too, to sow seeds in drills and thin out the resultant seedlings to 9ins. apart; there is then no check. Ridge cucumbers should be grown on flat-topped beds of rich soil, and frame varieties in frames, keeping the lights almost closed and securing heat and moisture. Radishes require a medium rich soil and a good depth. Sow the seeds thinly and a few, only, every three weeks. Grow mustard and cress in very rich soil on the north side of a wall or fence, and tomatoes on the hottest side. Leave a few beets 2ins. apart and thin them for use in August.

PLANTING OUT CHRYSANTHEMUMS FOR LIFTING.

These notes are intended to be helpful, mainly, to those cultivators who love chrysanthemums but do not possess pots in which to flower them, nor time to attend to the watering of plants in pots. Each year I generally plant out and lift 1,000 plants, often more. They bear flowers from October to the end of January, under glass. The varieties include October, December and January flowering ones. They should all be planted now. A very rich soil is not necessary nor desirable; it should be of medium quality, so that the shoots will be strong, and short-jointed, not long-jointed and sappy. Having provided a rooting medium of this kind and, in due course, watered when necessary, feeding with liquid manure may be carried out according to the condition of the plants in August and September. Feeding will not be needed at any other time, save in exceptional cases. The stopping of the plants should be done about ten days before, or after, the planting. The last stopping of the shoots should be done not later than the third week in July, or buds lacking petals, normally, may result. As a guide to distance apart to plant, varieties growing 3ft. high should be planted 18ins. apart in the rows, and the latter should be 3ft. asunder. The rows are best running due north and south, to allow the maximum amount of sunshine to ripen the wood. In some quarters where no border is available, ridges of soil 9ins. high and 16ins. wide may be formed and the plants put out in the usual way. Nearly all the soil will adhere to the roots when the plants are lifted and replanted under glass.

STAKING RUNNER BEANS AND TREATMENT OF BUSH-GROWN PLANTS.

Runner beans, unstopped, grow very tall, and to stake them adequately would entail much labour and costly stakes. If the two last-named items are not important, then good staking may be the rule. There are several ways of placing stakes to the plants: in rows, with a stake to each plant; in clumps, with from three to nine stakes to each;



and with strong ordinary pea sticks Some from preference, and others because stakes and sticks are too scarce, stop the plants and so treat them as dwarf bushes. There are many positions in gardens where clumps can be grown both for use and ornament. Such clumps should be, at the base, quite 3ft. in diameter, as shown from *a* to *a* in the sketch, and, at the top, 18ins. across, shown at *b*; a freshly cut stick, bent to form a hoop, will keep the stakes firmly in position, as shown at *c* and *d*. The point of the bush plant is stopped, when 1ft. high, at *e*; resultant side shoots at *f, f, f, f*; later shoots, also, at *g, g, g, g*. This treatment makes the plants grow strongly. Well grown plants bear pods like the one at *h*; badly grown and neglected plants bear ill-shaped pods like the one at *i*.

ST. BRIGID ANEMONES.

These flowers should be grown by all lovers of brightly-coloured blooms and handsome foliage. They are called St. Bridget as well as St. Brigid, the latter being mostly used; it is, I believe, a corruption of the former. It is often claimed for these plants that they will only grow satisfactorily in a light or sandy soil. I have tried them in various kinds, from light to sandy and from gravelly to clayey, and find the best results from a medium, well drained loam. In a sandy soil the foliage is dwarf, in a clayey soil it is medium in height and also the stems, but the flowers are richly coloured. In the medium heavy loam the leaves, their stems and the flowers are equally good. The plants are easily raised from seeds. The work is a very interesting one and, at a small expense, hundreds of plants can be obtained. The seeds may be sown in spring or autumn; those plants resulting from the former will flower the following winter and onwards; those from the latter, the next summer, late, and throughout the autumn and late winter. The seeds resemble cotton or thistledown in its fluffy appearance, and it is well worth while spending a little time separating the seeds before sowing them. Sow thinly and cover lightly, using loam, two-thirds, and leaf-soil, one-third. The rough leaves grow from the stem just below the seed leaves and not from the axils of the latter; the seedlings, even, make many and long roots, so early transplanting, and in a deep soil, is advisable. If a cold frame can be devoted to a batch of plants, a rich harvest of blossom will be available in adverse weather in the winter.

MAKING ARRANGEMENTS FOR SUMMER BEDDING.

After June 1st the work of bedding-out plants will begin, the hardier subjects being planted first, the most tender ones about the middle of that month. In the meantime it will be necessary to think about dealing with the bulbs and other spring-flowering plants that are to be kept through the summer for use again next autumn. A reserve border in the vegetable garden, or in some other quarter, should be dug ready for the spring-flowering subjects to be planted in. Then it will be necessary to consider the condition of the soil; it may need enriching with manure; if so, well rotted manure is the best to use. In some districts such manure is difficult to obtain, then old leaf-soil and decayed garden rubbish, especially that which has been burned in a smother fire, will prove very beneficial to the plants. Such kinds as zonal pelargoniums and petunias should be grown in a medium rich soil to obtain sufficiently strong growth, also plenty of blooms. Fine foliaged plants should have a fairly rich rooting medium. Gold and silver-leaved plants must not be grown in a rich soil, or the variegation will be lessened. Count and allot the plants for each bed before any are planted.

GEORGE GARNER.

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CORRESPONDENCE

PLANT HUNTING.

SIR,—As an old hand at the game of plant collecting in Switzerland and elsewhere, I have greatly enjoyed the two recent articles of Mr. Stuart Thompson, whose books I have used on such expeditions since 1912—with these, and Farrer, one can usually know what to expect and what it will look like. Hegi's "Flora des Mittel-Europa," is useful later in deciding the finer points of species differentiation, but too bulky to carry, of course; and Schroeter's "Pflanzen leben der Alpen" (now being republished, and sorely wanting translation), helps to pass the winter months and clear the mind on many subtle points of growth and habit.

Your editorial of May 9th is a useful supplement to these two admirable articles, but there are several points of warning that should still be brought to your readers' notice. Firstly, collecting should be meticulously sparing. I do not think there is any justification for taking plants which can be obtained cheaply and in good condition from many nurserymen in this country (I speak for amateurs), except in cases where outstandingly good forms are found, or unusual colours. It should be remembered that it is most often quite futile to try to extract long tap roots from crevices of the living rock, when a little farther up the slope a possible patch of scree or shale will provide compact rooted seedlings. It is sheer murder to take Viola cenisia, Saxifraga florulenta, Eritrichium nanum and the higher androsaces.

Secondly, the collector should endeavour to keep within the laws of the country where he takes his plants and not outrage local feeling by his depredations. In the Engadine there is a very large list of forbidden plants; in France one cannot use parcel post. Customs officials are often Fascisti. In the Maritime Alps collectors are not, or were not, popular; to quote from Saint Yves' monograph on the distribution of Saxifraga florulenta (Nice, 1907), "A Bavarian nurseryman spent seven weeks in August, 1903, collecting thousands and thousands of roots of the precious saxifrage. . . . Moreover, this is not an isolated fact. In 1897 a collector of Limone was instructed to send to an English firm a thousand bulbs of the very rare Fritillaria Moggridgei and F. tubæformis . . . the Pyrenees have also been the scene of similar devastations. About 1884 an English firm had instructed guides and porters from Gavarnie, to procure the greatest possible number of bulbs of the magnificent Narcissus cernuus Salisb., which grows on Mont Perdu. The number of bulbs sent would have been, apparently 30,000. . . . This odious traffic only came to an end when the Spanish shepherds, jealous of the profit thus made from their territory, welcomed the folk from Gavarnie with gunshot." One does not often meet such a reception; and in many places there are guides who make a point of showing off the local rarities. But for other reasons one has to be careful in wandering about frontier valleys and ridges. One may be taken for a smuggler, or a spy. To quote Ball, speaking of the Tenda district, "Travellers are regarded on both sides of the frontier with the greatest suspicion, and certain passes and summits are absolutely closed to them. . . . Sketching, photographing, taking notes or mapping, as well as any conversation with natives . . . should be most carefully avoided under pain of disagreeable consequences . . . etc." This was pre-war, of course, but how true is it now? We do require trustworthy information on this and local regulations regarding collecting and despatching plants.

Ones difficulties do not cease on reaching England. I am at present conducting an unsatisfactory correspondence with the Ministry of Agriculture over the question whether alpine plants sent from abroad must be accompanied by a certificate of health. Their powers under the Destructive Insects and Pests Order of 1922 are apparently ill-defined and in practice unlimited. The penalty is £10 and confiscation, but penalties are rarely enforced.

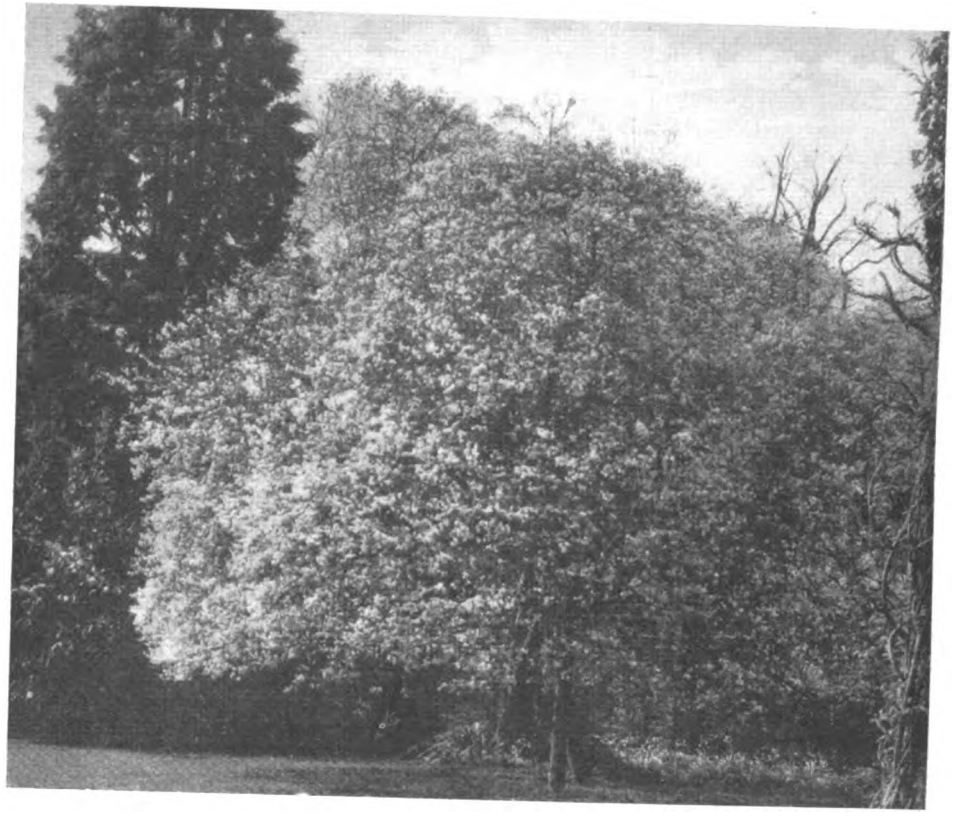
Plants brought back to this country, however packed, must be treated as surgical cases and given careful nursing. My own practice is to have a frame filled to within 2ins. of the glass with sharp sand, in full sun, and to put everything received into this, keeping close and watering frequently, until the chlorophyll comes back to the etiolated leaves and new roots push out. It is vigorous, even brutal, but successful, and the frame can be used without alteration for striking cuttings. Small and well rooted plants, after hardening, go out into the garden; larger clumps are re-divided and kept in cold frames, by way of reserve; for these newcomers sometimes exhaust themselves in their efforts to settle down, and fail to cope with our wet, warm winters. It is always a moot point whether one should leave flowers and seed pods on the collected plants. I think not, though I have, on occasion, saved both mother and child.

As regards apparatus, I prefer a rucksack and I find an ice axe a useful adjunct to the flat trowel—hardened climbers shudder and turn away at the sight of the strange uses it is put to. Numbered tags and a notebook are more practical than writing direct on a label—more room and easier writing.

The list of place names given by Mr. Stuart Thompson omits one little *Paradisus in Sole*, in Les Plans, above Bex (Vaud). Apart from the really exceptionally good alpine garden run by the University of Lausanne, the flora is good; granitic and limestone meet, each with their own typical species, which hybridise in the wildest fashion along the join; Rhododendron hirsutum crossing in infinite gradation of dominance with R. ferrugineum. One valley is yellow with Anemone sulphurea, but cross the ridge and the slopes glisten with A. alpina. High alpines save you the trouble of climbing to see them by growing engagingly in torrent beds thousands of feet below their proper level.—H. T. DENHAM (M.A.), *Wilmslow*.

THE SNOWY MESPILUS.

SIR,—The amelanchier family is a small one consisting of only four species, although the number of names under which it appears in catalogues is legion. The four species are alnifolia, oligocarpa, vulgaris and canadensis. All are natives of Canada or Northern United States, so should be quite hardy in this country, and it is surprising that this ornamental tree should not be more commonly seen than it is at present. Being of moderate size and graceful form, it is suitable even for small gardens where there is no great space for large trees, while the profusion of white blossom in April can be seen in the illustration. Not only is it beautiful in the spring, but also in the autumn it gives an almost more wonderful display owing to the gorgeous colouring of the leaves before they begin to fall. The tree shown in the illustration is in the garden of Sir Benjamin Bromhead at Thurlby Hall, near Lincoln, and is a very old specimen of Amelanchier canadensis, or snowy mespilus as it is generally called. Although it is correct to write "is," perhaps "was" would be a better definition, for, although the tree is still alive and sending out fresh growth from the old stem, unfortunately since this picture was taken storms have played havoc with the boughs and to a large extent have spoilt the central object of this old-world garden corner.—F. H. H.



A FINE OLD SPECIMEN OF THE SNOWY MESPILUS (AMELANCHIER CANADENSIS).

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AN INTERESTING DAHLIA.

SIR,—I send details of a dahlia that is in full bloom, thinking it may be of interest to the readers of THE GARDEN. It is of the Yellow Celoise variety, small bulb and grown in a greenhouse at Fingest, Bucks, and the bloom measures 6ins. across and the petals 2ins.—A. E. BOYLES.

DIGGING AND TRENCHING.

SIR,—I would like to be permitted to confirm Mr. Edwin Beckett's advocacy of trenching very clayey soils late in winter rather than in the autumn. I did the latter in dealing with some clayey ground, many years ago, with a view to being up to time with the work. A rainy winter followed, and I had the work to do again; the soil was then a paste early in spring, and it did not "work" kindly throughout the summer. The crops did not thrive, and I learned a valuable lesson. Now, I prefer to form rather high ridges if I am obliged to work such soil in the autumn. A neighbouring farmer experienced the same difficulty. He remarked to me one autumn, "I have ploughed my clayey field; if the weather is dry I am right, if it comes wet I am wrong." It came wet and he found more trouble.—G. G.

VIBURNUM CARLESII.

SIR,—It puzzled me to read in THE GARDEN of May 2nd Mr. Stern's encomium of Viburnum bitchuenense. It must surely have been through a slip of his pen that he extolled it higher than V. Carlesii. I have not his note before me, but since reading it I have examined plants of both species, only to be confirmed in regarding V. Carlesii as the choicest of the deciduous species, and V. bitchuenense as not worth growing at all. Mr. Stern credits the latter with pink flower-buds, whereas I have never seen them as other than white; but in V. Carlesii they contrast beautifully with the snow white expanded blossoms.

Most of the plants of V. Carlesii supplied by nurserymen are grafted on V. lantana. It requires incessant vigilance to prevent shoots from this irrepressible stock overpowering the scion, especially as the foliage of the two species closely resemble each other.—HERBERT MAXWELL, *Monreith*.

THE BALSAM: A PLEA FOR AN OLD FLORISTS FLOWER.

SIR,—Will you allow an admirer of a very charming annual, but one which has long since lost its popularity, to enter a plea for restitution and better recognition of the balsam? It is seldom, indeed, that one now meets with it, and it is no exaggeration to say that by the large majority of gardeners of the present time it is quite unknown. Time was, however, when in most establishments the order for seeds to be sown in spring included a packet of this—when well grown—very pretty flowering plant. I venture to say that one of the reasons why it lost ground was because, unlike so many other subjects, the blossoms were useless for cutting: could only be admired, in fact, and, therefore, in many places, this, one of the oldest of florists' favourites, was dropped. I am sometimes told that it is no use in these days growing flowers that have no value for cutting; but to me, at any rate, this seems an altogether too sweeping assertion. One might as well deprecate the culture of gloxinias, cyclamens, begonias—to name a few—that no one would dream of using as cut flowers, yet would not be without such plants that add beauty to a house. As greenhouse tenants, however, it is seldom that one meets with balsams. Occasionally I have noticed an odd plant or two in some cottager's window—an indication, at any rate, that interest in this annual is not quite extinct. One has a recollection of their being found on exhibition tables in the 'seventies, grown in 8in. pots under generous conditions in regard to compost, which was made up of old loam, leaf-mould and sharp sand, with an addition in the shape of some old cow manure. In a genial temperature balsams were shown with stout stems with plenty of lateral growth full of waxy blossoms, the pride of many an old florist of bygone days. I am not advocating a return to abnormal culture of so pretty an annual by finally shifting plants into pots one is accustomed to see chrysanthemums occupy, but to a revival of interest in a plant which, grown under ordinary conditions found under a greenhouse roof, and bloomed, say, in 5in. pots, merits praise when the beauty stage is reached. It was only a year or two ago that, in passing a house in the windows of which were flowering plants, someone remarked, "Isn't that beautiful?" and, almost in the same breath, "Whatever is it?"..It happened to be a well bloomed specimen balsam which excited my friend's curiosity. It seems to me that we are losing much to-day in allowing its culture to lapse, and I therefore enter a plea to those who have only, maybe, had a negative interest in this delightful annual, to become better acquainted with it.—W. LINDERS LEA.

OBITUARY

RICHARD PINCHES.

WHEN a man who was never a horticulturist and took no pains to conceal the fact becomes an active participant in the most prominent and important movements for horticultural progress, not by reason of his own tactics, but because of the spontaneous and appreciative welcome and urgent request from all quarters, he is, assuredly, a man of no ordinary character, a man whose worth one appreciates but never attempts to estimate.

Richard Pinches was widely known all Britain over, and wherever he was known he was not only esteemed but loved. "Pinches of Acme labels fame" has been a familiar phrase, but it was but a mere tab of identification, for in business life alone he has conferred upon nurserymen, exhibitors and floral artists benefits in a host. A long-felt or a new-found need had only to be explained to Richard Pinches and his fertile brain and mechanical ingenuity were immediately concentrated upon meeting that need, and always with greater concern for the assistance of a friend and the advancement of horticulture than for his own benefit. The graceful and pleasing arrangement of the flowers at Chelsea Show this week is in large part due to equipment conceived and designed by Richard Pinches. Still, the greatness of the man rests even more surely upon his ungrudging services on committees of well nigh all the floral and horticultural societies that meet in London, where his foresight, mental vision and wise counsel have times innumerable helped to achieve successes, and frequently to steer the barque of some society through troubled waters. Beyond and above all this, his personal friendship has been a blessing to a vast number of Fellows who had the good sense to confide in Pinches and seek his advice. Richard Pinches was proud of being a Londoner, but much of his early life was spent in the provinces. His natural endowments were admirably developed by a sound education and early association with men of character and accomplishment. At one time a master at Chester's illustrious School of Art, he later devoted himself to commercial art in Norwich, where he was designer and draughtsman to an important furnishing house.

Edinburgh Royal Botanic Garden Guild.—The members of this Guild have arranged to hold a meeting in the Lecture Hall of the Royal Botanic Garden on May 20th, 1925, at 7 p.m., with the object of reviving the interest in and arranging for the continuance of the Journal of the Guild. Mr. A. McCutcheon, the secretary (pro. tem.), would be pleased if all old members would endeavour to be present. He would also be glad if members of the Guild who have changed their addresses since the publication of the last Journal would let him know their present addresses for inclusion in the next issue of the Journal.

The Iris Society.—In May, 1922, a small gathering of iris enthusiasts met together in London to welcome Mr. J. C. Wister (President American Iris Society), M. S. Mottet and other Continental visitors. At this meeting the idea of a British Iris Society was proposed by Mr. R. W. Wallace, and on October 4th "The Iris Society" came into being. Many interesting papers have been read at the Society's meetings, but apparently these were not published. During 1924 the Society seems to have largely increased, and the first Bulletin is now to hand. This deals chiefly with the cultivation of bearded iris in different parts of the country, and we note articles by some of the leading experts, as Sir Arthur Hort, Mr. W. R. Dykes, Mr. G. Yeld, etc. The Hon. Secretary, 25, Bower Mount Road, Maidstone, informs us that he has a few spare copies of this Bulletin which he will be pleased to send to our readers, gratis, and application should be made direct to him. We hear that Bulletin No. 2 is shortly to be issued, and contains articles of special interest by American and Continental experts. We are glad to note that this Society has realised the urgent necessity of dealing with the classification and nomenclature of iris in commerce, and the first step has been taken towards this somewhat difficult task by co-operation with the Royal Horticultural Society, whose Council have arranged for iris trials to be carried out at Wisley. A joint committee of the two Societies has been set up, and a large number of the leading varieties has already been planted at Wisley. We think that those interested in Irises would do well to get into touch with this useful Society, and we hear that the annual subscription is 10s. 6d.

A Cup for Peonies.—Peonies are so comparatively easily grown that it is a matter of surprise that they are not more largely used in our gardens than appears to be the case. In America their value has been realised for some time, and there seem to be many enthusiasts who cultivate a great number of varieties. Among them the best known is Mrs. Edward Harding, who published in 1917 "The Book of the Peony" and, more recently, in 1923, a smaller volume on "Peonies in the Little Garden." So convinced is Mrs. Harding of the value of peonies for garden decoration that she has presented to the Royal Horticultural Society three cups to be awarded for exhibits of these flowers. The first is offered for competition at the R.H.S. Show on Tuesday, June 9th, 1925, for the best exhibit by an amateur of three flowers each of six varieties of peony. Medals will be awarded as the second and third prizes if the exhibits are considered to deserve them. It is hoped that Mrs. Harding's generous offer will encourage a keen competition among amateur growers of peonies.

Entries should be received by the Secretary of the Royal Horticultural Society, Vincent Square, London, S.W.1, not later than the first post on the morning of Wednesday, June 3rd, and all exhibits must be staged not later than 11 a.m. on the morning of Tuesday, June 9th.

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GARDENERS: I—THE COMMUTER

LIVING as I do in London, I count among my friends many who live in the country and work in town. We have no name for this method of life, so I have to borrow an American expression: he who commutes, the commuter. Although he could be called a week-end gardener during the winter months, for he never sees his garden except on Saturday and Sunday, yet the true week-end gardener conjures up the vision of gardening on ground which is not home, but a plaything to be visited on a fine Saturday to Monday in summer. Ergo, the real week-ender, can only play at gardening, whereas, if a commuter takes up gardening seriously, it usually ends in becoming one of the most important things in his life.

There is no gardener so serious as the real commuter gardener, and perhaps this is strange, for he is comparatively a new comer, brought into existence by such modern conveniences as the motor and the electrification of suburban railways, but he has certainly come to stay and will take a greater part each year in our gardening life.

There is an expression that there is no fool like an old fool. Perhaps the metaphor is a little unkind, but there is certainly no gardener so keen as he who takes up horticulture late in life. Presumably he is a busy man and in order to make a living has to train his brain in his occupation, and so, having to fight his own battles in a city, is able to attack the science of horticulture from the right angle, for to be able to weigh the pros and cons is just as great an asset in gardening as in anything else. The commuter gardener may often stumble, he certainly makes mistakes, he frequently scorns the obvious, he sometimes defies old established rules and customs, but some way or other he gets there in the end and accomplishes what he has set out to do.

You can see them at any of the big flower shows, very much the city man, bowler hat, starched collar, short black coat, dark trousers, black boots and all, and you wonder what this incongruous figure is doing. You may watch him and you suddenly discover that he is there with a purpose, that he is not merely there to pass the time of day with his friends and admire the exhibits. He knows what he wants and he has a nose like a truffle-hound for finding good varieties or new species or odds and ends which are not easily found.

This may sound a most unromantic form of gardening, but it is not. The only thing is that romance varies according to conditions. The commuter gardener levels all his affections of the countryside on getting results and he says quite frankly that it is his garden that interests him and not the general panorama. Consequently he often knows more of the lore of his particular branch of gardening than the man who spends his life in the country and whose country pursuits are much wider in their application. The commuter gardener often studies the literature of his subject in the evening; he is always a voracious catalogue reader, while the man who lives in the depth of the country rushes to his wireless or to the latest novel. This criscrossing of ones aspirations is only natural; it is the desire to escape from the rut.

I have a great admiration for the commuter gardener. Invariably he makes up in keenness what he may lack in knowledge or even in judgment. It is obvious that this is so, for there is no necessity for him to garden; if there are not already six tennis courts and a golf course or two in the neighbourhood, there soon will be. One commuter of my acquaintance with a passion for rock gardening started, I confess partly on my advice, growing various species of primulas. He has become keener and keener on the genus and has combed the British Isles and the Continent for treasures. In the space of one short year he has amassed a wonderful assortment. Not content with collecting the plants, an occupation which I am sure has given him a great deal of fun, he has also followed the trail of finding out all he can about them. Everyone knows that as a genus the primula is difficult to grow successfully. Many gardeners would take a good deal for granted with consequent failures. Not so my friend; he takes nothing for granted and no doubt will be extremely successful.

This case is not by any means an exception, for as a rule the commuter gardener is a vigorous individual who knows his own mind and sees that he gets what he wants. I am shown over many gardens in the course of a year and I must confess that almost without exception the best of the smaller type of garden that I see belong to people who journey daily to a town, not necessarily London, to work. There may be something in the old proverb that familiarity breeds contempt, for there certainly seems to me to be a vigour and a freshness in outlook and result when a business man takes up gardening, which is occasionally lacking in gardens where the owner is at hand every day in the year.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

SUMMER BEDDING, by Arthur J. Cobb.

HYDRANGEAS, by I. Hawker.

GARDENS OF HEALING, by Victoria Slade.

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PLANTS FOR THE WOODLAND

BY DR. R. LLOYD PRAEGER.

LOOKED at from the gardening point of view—the natural point of view for this journal—the subject of woodland plants resolves itself into the question: What species can we plant under trees with a fair chance of their succeeding? The list is a good deal longer than might at first be supposed, I think for the following reason. In places where summer really *is* summer—in Galicia, Lombardy or Carinthia, Maryland or Manitoba—many plants live in the woods to escape the heat and glare of July and August. But our comparatively cool and watery summer sunlight (cold and wet best describes the sunlight of the past two "summers") is something of which these shade plants are not afraid, and in consequence we are inclined to class as border plants many which are actually fitted to a woodland existence. Woodland plants flourish in partnership with trees by means of various devices, for they live under peculiar conditions. Firstly, there is a great diminution of light. Even in a leafless wood the amount of light which reaches the ground is only about a quarter of that which falls on the tree-tops; when the trees are in leaf the amount of illumination is much less still, depending on the kind of tree. While in a wood of birch or oak sufficient light gets through to allow of a varied ground flora, a forest of beech or spruce may so reduce the illumination that no ordinary plant can live, and the only inhabitants (among the higher plants) are a few parasites or saprophytes which, like toadstools, are not dependent for their food supply on the action of sunlight upon chlorophyll. Then, again, plants growing in woods must guard against drought, both because the trees use up a vast amount of the water of the soil and because the leaves intercept much of the rainfall, and it evaporates without reaching the ground. The scarcity of light and water in summer, then, is the main difficulty that woodland plants have to face. While they meet it in many different ways, two methods stand out conspicuously. In the first place, they speed up when the year begins, and get through their "summer course" early; they do their growing and often their flowering before the trees come into leaf. In this way they get plenty of light and moisture during their active period, and their blossoms are more open to insect visitors, or to the wind in the case of wind-pollinated flowers. Secondly, they very often have swollen underground parts—bulbs or tuberous roots or stems—in which food is retained through the dry season and is held ready for an early start in the following spring. The rich humus soil in which woodland plants live no doubt renders the problem of existence easier, and it has in some cases resulted in the total abandonment of the chlorophyll habit which is characteristic of the whole vegetable world with the exception of the fungi.

But it does not follow from what has been said that we may assume that a spring-flowering species or a bulb-bearing species is therefore a woodland plant. Nature employs these devices in other cases besides. Bulbs, for instance, are abundant on the African veldt, where their use, indeed, is to store up food through the burning summer, but where a high light intensity prevails during the plant's growing period, to which it has become accustomed, and without which it would pine. But where, among hardy plants, we find thickened underground parts, or early flowering, or large, thin leaves, or a partiality for leaf-mould, we may suspect that many of them will not object to woodland conditions. And by this last phrase one implies much more than attempts at planting in actual woodland. Wherever sunlight is cut off for the greater part of the day these observations apply. It may be the north side of a house or a wall or a fence or the shade of a single tree. Anywhere where ferns will flourish, and in some shaded places too dry for ferns, the woodland flora will supply some species to come to the gardener's assistance.

THE HELLEBORES FORM A CHARMING SET OF WOODLAND PLANTS.

But it is time we came on to the plants themselves. Let us take the more obvious spring-flowering herbs first, as exemplified by the celandines and primroses and anemones of our own woods, and consider them in relation to woodland planting. The hepatica (Anemone Hepatica and Hepatica triloba) is characteristic of northern and alpine European woods, and one cannot have too much of it and its allies—white, red and blue, single and double. The hellebores furnish a charming set of winter-flowering shade plants, ½ft. to 3ft. high, with flowers of green or white or purple. The hellebores are so well known that it hardly appears necessary to give a selection of the many species. All are fond of a rich soil, and are very slow and deliberate in settling down to business. Like the foregoing, epimedium is a very early-flowering genus with delightful foliage and graceful sprays of red, yellow or white blossoms. Its cousin Vancouveria is charming likewise, spreading rapidly and flowering later. The type is deciduous, but var. sibirica is evergreen. The lungworts, pulmonaria, are pleasing both from their quaint leaves, often mottled with white, and their flowers, which in most species open red and turn blue, like many other members of the forget-me-not family. There are a number of species, some blooming as early as January. Omphalodes verna, a cousin of the last, is an old favourite, under the name of Blue-eyed Mary, a delightful woodland plant, for though its flowers are not conspicuous, their pure colour is a joy. A large number of other species of omphalodes, mostly very beautiful, have recently come to our gardens. Some of them will probably prove to be at home in the woodland. The forget-me-not family (Boraginaceæ) has still other woodland members, for the alkanet, Anchusa sempervirens, with its leafy stems and intensely blue specks of flower, belongs here, and also Trachystemon orientale, a tall, coarse thing, but fine for a waste place on account of its very early panicles of quaint blue-purple flowers. The buttercup family offers us many very valuable woodland plants in addition to hepaticas. There are all the varieties of anemone

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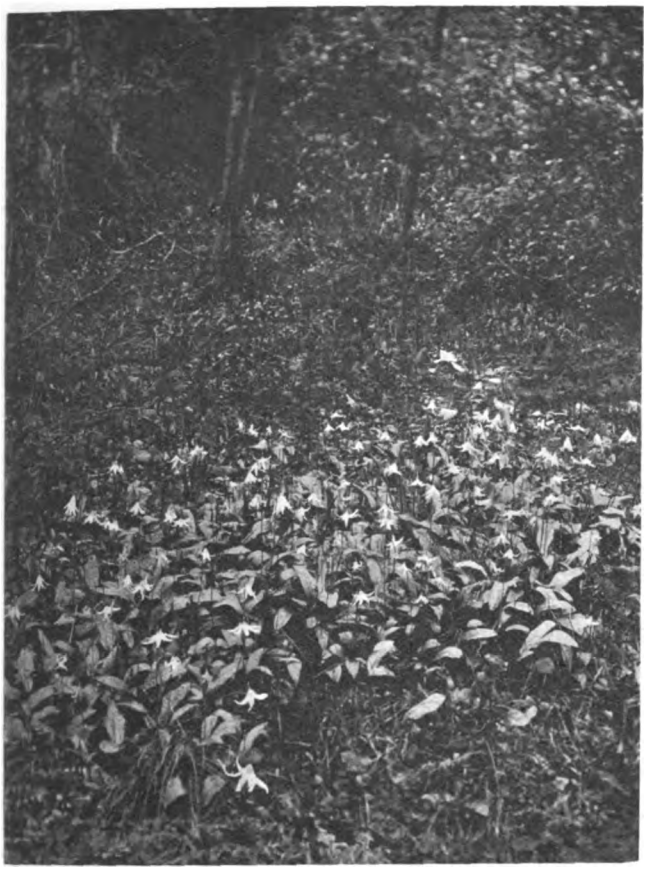

ERYTHRONIUMS, THE DOG'S-TOOTH VIOLETS.

of the nemorosa group—nemorosa itself, our wood anemone, with its many beautiful varieties—white, reddish and blue; A. blanda and A. appenina, both lovely blue-flowered things; and the striking A. blanda var. Scythinica, blue outside and white within; the little twin-flowered yellow A. ranunculoides. Then there is the taller A. sylvestris with its large, single creamy fragrant blossoms, and the dainty A. narcissiflora with fan-shaped leaves and many-flowered erect stems. The globe flowers (trollius) and the columbines (aquilegia) are all lovely, and include plenty of shade-loving plants. Then primula is a host in itself. For places of normal moisture we have all the varieties of the primrose, from white to blue, and all the polyanthus forms, and the favourite P. Juliæ, etc. For moister places many of the great crowd of species now found in gardens have no objection to shade, but I cannot from experience indicate which are best in this respect.

I am rapidly exhausting the space at my disposal, yet only now come to two groups of plants which are among the most interesting and characteristic of those which we associate with shade culture—the one a small group of leathery-leaved things, mostly beautiful in flower and often difficult of cultivation; the other the large group of bulbous and tuberous-rooted plants, mainly monocotyledons, that are being used more and more for naturalising under trees.

In the first category come those elegant and distressing plants the pyrolas or winter greens, none really easy, and the most beautiful of all, the fragrant P. uniflora, almost impossible. The difficulty with the pyrolas, as with several others of the plants to be mentioned immediately, is to secure properly rooted pieces. In nature they straggle along, their slender stems half above and half below the ground, rooting only in the most tentative fashion; and when transplanted they linger for a long time, but finally decide to die. The one that I found easiest was P. rotundifolia var. arenaria, from the sand dunes near Southport, where, I believe, it still lingers in spite of the relentless encroachment of golf greens and bungalows. Then there is the attractive American Shortia galacifolia and the even better S. uniflora from Japan: lovely things, if only one can persuade their elusive roots to do their duty. Galax aphylla, also American, is easier than shortia, and its slender spires of small flowers are very dainty. The creeping Tanakæa radicans is graceful and easy, making a mat of low evergreen toothed leaves and runners with sprays of graceful white blossom. Like so many dainty things, it comes from Japan. One must not omit two most fairy-like tiny creeping things—the well known Maianthemum bifolium, which ramps about with its slender twin heart-shaped leaves and plume of white bloom; and the less common Trientalis europæa, a fragile but quite easy beauty, with appealing tiny white stars and delicate foliage. Of stronger creeping things we have the ever-welcome lily of the valley, Convallaria majalis, with its large form and its rosy flowered variant, and a variety of Solomon's seal, polygonatum, all highly decorative. Allied to these is the strange Paris quadrifolia, with its single yellowish flower rising from four leaves set like those of the wood anemone.

What are we to say of all the trilliums and erythroniums and dodecatheons and cypripediums? There are at least a dozen of each which deserve separate mention, for all are beautiful and of high value to the gardener. All love a deep, cool woodland soil, and once established are among the best delights of spring. But space forbids the adequate singing of their praises or displaying of their varied charms. They would need a long article to themselves. Indeed, the same applies to the many bulbs that can be so charmingly used in woodland gardening—galanthus and narcissus especially in great variety, scillas, leucojums and what not and to start into them at this time of day would be futile.

Every plant hitherto mentioned is of perennial duration, and, indeed, annuals or biennials are rare in natural woodlands, and generally unsuited for introduction therein. But there is one glorious genus, mostly biennial, which is so beautiful in leaf and flower, and so varied, that it cannot be passed by, as many of its members are at home in a well drained forest soil. I refer, of course, to meconopsis. While many of the loveliest of the species are rather delicate and miffy little ladies, the stronger or better proved kinds, like M. aculeata, M. integrifolia, M. paniculata and M. Wallichii, are easily raised and easily grown, and have the distinguished beauty of their genus.

THE ATTRACTIVE SHORTIA GALACIFOLIA FROM AMERICA.

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THE HARDY BROOMS

DURING the last twenty-five years very important developments have taken place among several species of cytisus, until to-day they rank among the most showy and useful shrubs for sunny borders. Their marked improvement may be attributed to three main causes: (1) natural or chance hybrids; (2) artificial pollination; and (3) selection and raising of seedlings.

For light, well drained soils in sunny positions, brooms should be much more widely planted. They are particularly useful for banks and shrubbery borders which are in full sun. Quite ordinary soil of a light character is preferable to a rich loam in which the plants may make abundant growth but do not flower nearly so freely.

Allowed to grow naturally, the tall-growing kinds soon become leggy. To counteract this, the shoots of the young plants should be cut back several times in the early years of growth; while older plants benefit by shortening the main branches each year immediately after flowering.

Seeds, cuttings and, in a few instances, grafting with the laburnum as a stock provide ready means of increasing broom in quantity.

VARIETIES OF THE COMMON BROOM.

The rich yellow blossoms of the common wild broom, Cytisus scoparius, should be made much more use of by planters in our pleasure grounds, wild garden and open woodland, where not naturally wild. It not infrequently happens, when a few seedlings are planted in shrubbery borders and the wild garden, that seeds from these drop in favourable positions for germination and become established without the help of man.

Probably because a native British shrub, the common broom has not received the attention in most gardens undoubtedly it deserves, the discovery in Normandy about 1884 by the French landscape gardener, M. Edouard André, of a wild seedling broom with brownish crimson wing petals and named var. Andreanus, may have appeared to many people a small matter at the time. This departure from the type, however, has proved to be but the beginning of a most important and valuable addition to our hardy-flowering shrubs. As so often happens, once a plant varies from the type, remarkable and much wider variation rapidly follows.

The name of the late Mr. Tom Smith of Newry will always be associated with the early development of the first coloured variations from André's broom. Five distinct named varieties were distributed from the Daisy Hill Nurseries: Butterfly, bronzy red and yellow; Daisy Hill, creamy yellow and deep red; Firefly, the richest coloured form of Andreanus; Mayfly, red and yellow; and Newry Seedling, pale cream with rosy red blotch. Still further developments appear in the following named sorts: Daisy Hill splendens, pale yellow with rosy crimson keel; Dragonfly, golden yellow and rich crimson; Fairy, cream tinged rosy pink; fulgens, orange yellow, dark crimson keel; and Rosy Moonlight, cream tinged with rose.

To reproduce these beautiful varieties true they should be propagated by cuttings or grafted on seedling laburnums

A FINE PLANT OF CYTISUS KEWENSIS.

Seedlings raised from C. Andreanus and the varieties show a very wide variation in colour; while there is always the possibility of a small percentage showing some improvement on the parent, the larger number are usually inferior in colour.

Quite a considerable number of other variations of the common broom are cultivated in our gardens. Newry Gold is one with rich yellow blossoms; sulphureus or pallidus, the Moonlight Broom, though not common, is an old variety (being described by Louden eighty years ago), with pale yellow blossoms which provide a pleasant contrast to others richer in colour. The drooping or spreading broom, var. pendulus, is valuable for banks and for sprawling over boulders and ledges in the rock garden. The name prostratus is frequently used for these brooms in nurseries, but the true variety prostrata is much more close-growing and compact in habit. Of this I have only seen a form with yellow blossoms.

Cornish Cream is a new variety raised at Lanarth, Cornwall, by Mr. P. D. Williams. There are two shades of colour in the flower, the keel being several shades darker than the cream-coloured standards.

The Warminster Broom, C. præcox, a hybrid between C. purgans and albus, originated among a batch of seedling C. purgans in the nursery of Messrs. Wheeler of Warminster in the sixties of last century. It has sulphur-yellow blossoms produced in profusion at the end of April and during the first half of May. Effective in masses in the pleasure grounds, the Warminster Broom should not be planted in any appreciable numbers near the house because of the uninviting odour of the flowers. This broom increases readily from cuttings.

The white Portugal or Spanish Broom, C. albus, is a tall-growing shrub of graceful habit, readily raised from seeds, and the seedlings show some variation in habit and size of the flowers. The best can be selected and propagated by cuttings. The variety incarnatus or roseus has a tint of rose in the flowers and is especially noticeable when half expanded.

The beautiful hybrid broom raised at Kew in 1900, C. Dallimorei, is said to be the first hybrid broom raised by artificial crossing. As the pollination was carried out under glass (C. scoparius var. Andreanus × C. albus), there can be no doubt of its origin, otherwise C. purpureus might be suggested as a more probable parent at first sight, as the flowers are a shade of rosy purple deepening to velvety crimson on the wing petals.

The parentage of C. Dallimorei is soon disclosed when seedlings are raised, as innumerable colours, ranging from pure white, through cream, yellow, forms of Andreanus and colours even richer than typical C. Dallimorei make their appearance.

Apparently the two new varieties, Donard Seedling and Dorothy Walpole, have the same parents as C. Dallimorei, or are selected seedlings from it. Donard Seedling has reddish crimson flowers suffused with a greyish cream, yellow and rose. In Dorothy Walpole the keel is rich rosy purple, with the wings a deep velvety crimson.

C. Osbornii is a very distinct seedling from Dallimore's Broom, raised at Kew, with pale yellow flowers and suggests C. præcox, but is a little later in flowering. The

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plants are rather more upright in growth, and in the bud stage the colour is deeper. An important consideration is that the odour of C. præcox, so offensive to many, is absent in this new variety.

Two late-flowering cytisuses are deserving of more attention from planters. C. sessilifolius is a native of southern Europe and northern Africa. Though first introduced about three hundred years ago and figured in an early number of the *Botanical Magazine*, tab. 255, the sessile-leaved broom is comparatively little known. It is a bushy shrub and averages about 5ft. in height, with rich yellow blossoms four to eight or ten together, borne in short racemes terminating new side growth on the main branches.

Cytisus nigricans, the so-called black broom, because the blooms turn black when dried, flowers freely during July and August. It is a native of central and south-eastern Europe, and was first introduced in 1730. Growing 4ft. to 5ft. or more in height, the yellow flowers are freely carried in slender racemes terminating the shoots of the year. If the plants are pruned fairly hard each year in February or early March it considerably increases the vigour and length of the flowering shoots.

When visiting the Newry nursery in August, 1915, I noticed seedling forms of the common broom, C. scoparius, still flowering. By selecting the latest to bloom a race of July and August flowering varieties had been obtained. Most of the bushes had yellow flowers, though several with the crimson stain of Andreanus were noticeable. Seeds and plants have been disseminated to customers from Newry, but no doubt largely because of the war they are not much known.

DWARF BROOMS.

For the rock garden and grouping along the front of sunny borders, several dwarf cytisuses are of outstanding merit. C. Ardoinii, with yellow flowers, is free in growth and also very ornamental. It is notable as the parent of two dwarf hybrid brooms: C. kewensis (C. Ardoinii × albus), of spreading habit and creamy white blossoms; and C. Beanii (C. Ardoinii × purgans), of spreading growth, with rich yellow flowers.

The purple broom, C. purpureus, is represented by the type with rosy purple blossoms and at least three distinct varieties—albus, incarnatus and versicolor. A. OSBORN.

C. ALBUS, TALL GROWING AND OF GRACEFUL HABIT.

JOHN RICHARD ANDERSON, J.P.

HIS GARDEN DIARY, 1745. A NOTE BY THE HAND OF DION CLAYTON CALTHROP.

(*Continued from page* 286.)

MY friend does not merely dream his life away among his books or under his favourite tree, but endeavours to keep company with all manner of men whose conversation is not purely frivolous. He has as good a sense of humour as any man and can tell a story against himself with relish.

Among his notes he places anything curious that he hears or that comes under his immediate notice. For example, I find that he is at pains to discover the origin of the names given to flowers both wild and cultivated. "Some names," he writes, "seem to spring from no recognizable source yet they obtain up & down the countryside where a man will speak of the plant 'Good King Henry' not knowing it to be called also 'English Mercury.' Which King Henry can he mean?"

Of "Monk's Rhubarb" (Rumea Patientia) he can see clearly that it is a medicinal plant and comes under the order of Simples (which he often spells "ffimples") such as were collected and cultivated in those days when a knowledge of herbs was a necessary precaution in life. With these so-called pot herbs comes also Herb Patience.

In his day there were many wise women who brewed concoctions against all manner of evils and also as love potions. In the notes especially on herbs one finds names which at one suggest fragrance of both history and poetry.

"Sweet Marjoram," he writes, "what fragrant thoughts arise at the sound of such names as these. 'Herb Teucer,' 'Germander,' 'Wound Wort,' 'Wild Thyme' and 'Penny-royal' and 'Meadow Sage.' In the twilight of Botany such names arose and bloomed through the night of the Dark Ages until the day broke, but in those mists a country Poet sang of simple things near to the Earth as Adam."

Did (this for a fancy) the Herb Twopence gain its name from the first financier and did that careful man give it its Latin name in order to hide the secret of his wealth from the ever greedy: "Lysimachia nummularia"?

Our country poet finds names in this green island awaiting him, to nameless plants and flowers he gives names by a god-fatherdom of his own, and as I read Mr. Anderson I see how justly he sets down not only the learned names but the little names, the first love names. But, mark you, he has method too.

March 1st. Now the Windes come fiercely bind your weakest Plants against they become prostrate. Now is the Time to sow Pinks and Sweet Williams and Carnations. Acquaint your Greenhouse and Conservatory gradually with the Air by Day but trust not the Night. Beware the sudden darking of the Sun and also the Frosts and sharp Winds. If the season be dry water your Anemony roots well once or twice a week. Be careful also that the East Winds do not prejudice your choicest plants, as Tulips and Jacynths but shelter them with Mats.

In April Mr. Anderson's advice is:

that you do now sow Hyssop, Basile, Thyme and Scurvey Grass. Entertain such Exotic plants as you may possess in fresh hot beds with the Art to preserve them and foster them during this Season.

It is now the time of Laycock, White Thorn, Musk, Florence Iris, Lady's Smock and White Violets.

This is the Time to distil Plants for Waters.

Set your Bees at Liberty but expect Swarms.

Note: Some say Gilly-flowers should be planted by Full Moon, but such sayings creep in from one knows not where. Though they be Heathen still the Heathen kept flowers and knew of many strange Devices.

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For May Mr. Anderson notes that "Snails should be gathered after Rain. Set also tempting baits against the ravages of Insects. Now are flowering both white and blue Campanulas, as is also the Deptford Pink and Homer's Moly with many other flowers too numerous to set down."

He has his Duke, Flanders and Heart cherries, black, white and red, also the Luke-ward and Naples cherries, and at this time he has strawberries, corinths and melons.

In June he notes that "Aviary birds grow sick of their feathers so that he makes Emulsions for them of Melon and Cucumber seeds, and gives them Groundsel, and Chickweed &, if he has some, of the Pome-Granade seeds."

So placid a man as Mr. Anderson has a temper besides for the follies of the people who will not provide for themselves. "There are people in this world," he writes, "who have no thought for the Winter. They never dry a herb or pickle onions or the seeds of the Nasturtium, nor will they keep a Tub of Brine and lay by such pieces of Pig as the Ears, Tail, etc., which would serve them for the winter months. So I must ask my neighbours for old Cloakes & cast away shoes & many other things as old Linen, Medicines & Stale Bread. Mr. Endover doth give me wood for the cutting but Lord these fanglish people as soon cut themselves as wood and a man will as soon drink Gin and other Strong Waters and Smoak his pipe as tend his piece of garden."

Then follows, without due sequence of idea, a note: "The Bill of a Property Man to a Theatre. (Lord how strange to see how effects are come by.)."

	£	s.	d.
For Hire of Six Case of Pistols		4	0
A Drum for Mrs. Bignall in the Pilgrim		4	4
A Truss of Straw for the Madmen			8
Pomatum and Vermilion to Grease the Face of the Stuttering Cook			8
For Boarding a Setting Dog Two Day to follow Mr. Johnson in Epsom-Wells			6
For Blood in Macbeth			3
Raisins and Almonds for a Witches Banquet			8

In July he is at the perpetual war gardeners wage against insects. He straightens the entrance to his bee hives and sets about killing drones. Then he sets glasses of beer mingled with honey to entice wasps and flies, and he hangs these bottles near his nectarines and other tempting fruits. "Else many times they invade your best Fruit." He seeks diligently for snails under the leaves of his mural trees and makes a decoction of tobacco refuse, brine, potash and water with which to water his gravel walks so as to destroy worms and weeds.

In August he makes his cider and perry, keeping his choice apples, such as the Ladies' Longing, Sheeps-snout and Cushion apples for the table. At Bartholemew-tide Mr. Anderson removes and lays his perennial greens, his jasmines and oleanders and translates them to moist and shaded ground.

With all these garden cares and delights Mr. Anderson is happy, but naturally he is not free from the ills the flesh is heir to. There are boys who break in and steal his choice fruit, there is swine fever in the neighbourhood, his favourite horse goes lame and himself suffers from a twinge of "that plaguey thing, the gout." He notes that "cats will eat & destroy your Marum Syriac if they can come at it." And that robbing insects and wasps must continually be destroyed.

"Last week," he writes, "comes Sir Abel Rawley out of the Town and brings me news of the Great World, but O how stale and unprofitable it is and sounds so in my quiet & peace. That Brocade Sword Knots be now worn, that Bat Pigeon is the only wigmaker of elegance; that Lady ——, hath an affair with a low ill bred fellow: and how some madman preaches that a Plague will fall on the Earth by Christmas and utterly destroy all who go to Playhouses & Taverns, these things vex the ear and are vain & small in the country."

Now the good man is at seeing the autumn leaves are swept and gathered together to make good mould; he is taking care that his carnations do not get too wet and so rot. He is preparing against wind and frost, rolling his grass walks and finishing his last weeding.

Now Mr. Anderson prepares for the end of the year, cutting logs for his hearth, trenching his ground and digging in manure. He covers up his bees and turns the fruit in the store room lest it taint. His fruit trees are pruned and nailed to the walls and all in the garden is in order. The fountain pipes are covered with straw against the frost and the conservatory doors are looked to to see that they shut out the cold air.

Here is the last entry in this diary:

Dec. 31st. I do thank God for all His Goodness and Mercy to me in this year, guarding me from loss and from illness of any grave order. I thank Him for the abundant yield of Fruit and Flowers which are a solace to the mind causing man to live simple and in great content.

All flesh is grass. J. R. A.

APHIDES OR PLANT-LICE

TO both farmer and gardener "blight" is a familiar word. It is well known that it is caused by a host of minute creatures which bear the scientific name of aphides. The term "green fly" is commonly applied to these insects—which include the green rose aphis, the woolly blight of apple and pear trees, the hop louse and the Phylloxera vastratrix (the vine aphis), which has at times caused such terrible losses to the vine industry in France.

Altogether there are some two hundred different species of aphides and (though often called "green fly") they vary much in colour. Those found on rose trees are certainly green, but those on beans are black. Others are brown and some are brilliant red.

The extraordinary life-history of these creatures may be of interest to readers. In the spring, female aphides hatch out of eggs laid during the previous autumn. These are

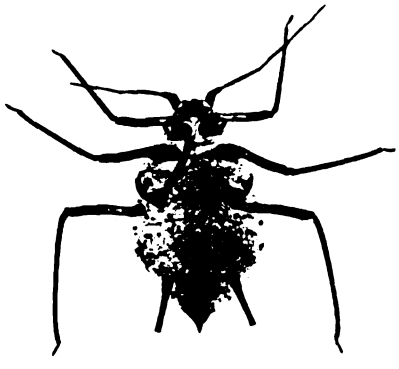

FIG. 1.—THE THISTLE APHIS.

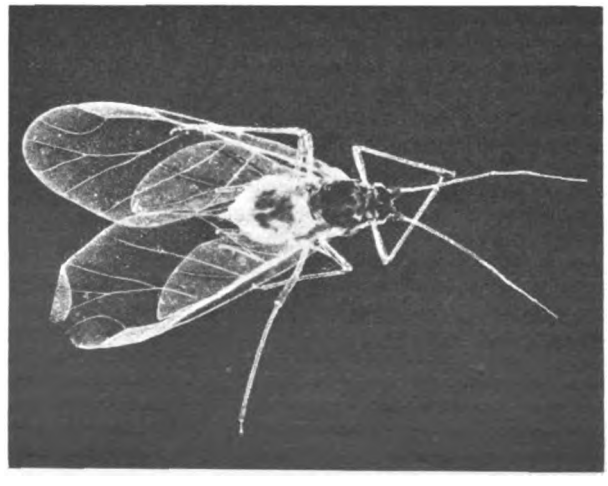

FIG. 2.—THE WINGED APHIS.

FIG. 3.—THE ANT

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females without wings. They soon grow to maturity and give birth, not to eggs, but to females like themselves. The little ones soon grow up and begin to produce others, and so the process goes on for several generations. Then a strange thing happens. A generation appears which consists of winged aphides (Fig. 2). The wingless aphis is a slow-moving creature and only crawls leisurely over the leaves, but the winged aphis can fly away in search of richer food. It has been noticed that directly a winged generation appears that these will migrate to another feeding ground. The aphis found on apple, for example, produces a winged generation which migrates to the stem of corn and then they produce another which lives on this particular form of food.

Towards autumn a small race appears which consists of males and females. These pair and eventually the females lay eggs which hatch out the following spring, and so the wonderful process of reproduction is repeated year by year.

The extraordinary prolificacy of these creatures accounts for the myriads which exist. Huxley has stated that a single aphis would produce in ten generations descendants (if they all survived) which would "contain more ponderous substance than five hundred millions of stout men; that is more than the whole population of China." Fortunately for us, the aphides have many enemies. Among them the ladybirds, which practically live on them. Bonnet, the famous naturalist, said that as we sow grain for our benefit, "Nature has sown aphides for the multitude of insects." Looked at from another point of view, were there no enemies of the aphides, then men would have little food and would gradually be exterminated by "blight."

Ants (see Fig. 3), which are perhaps the most intelligent of all insects, make use of aphides for their own benefit. They actually "keep" them as we keep cows. The aphides produce a substance known as honey-dew, a favourite food of many insects. Fig. 1 is a photomicrograph of a thistle aphis much magnified. A peculiar structure will be noticed in the pair of syphons at the lower part of the insect. These were at one time thought to be the organs which produced the honey-dew. But this is not true. They are wax-producing organs, and from them comes a substance similar to that made by the honey bee. The honey-dew is formed in the alimentary canal of the insect.

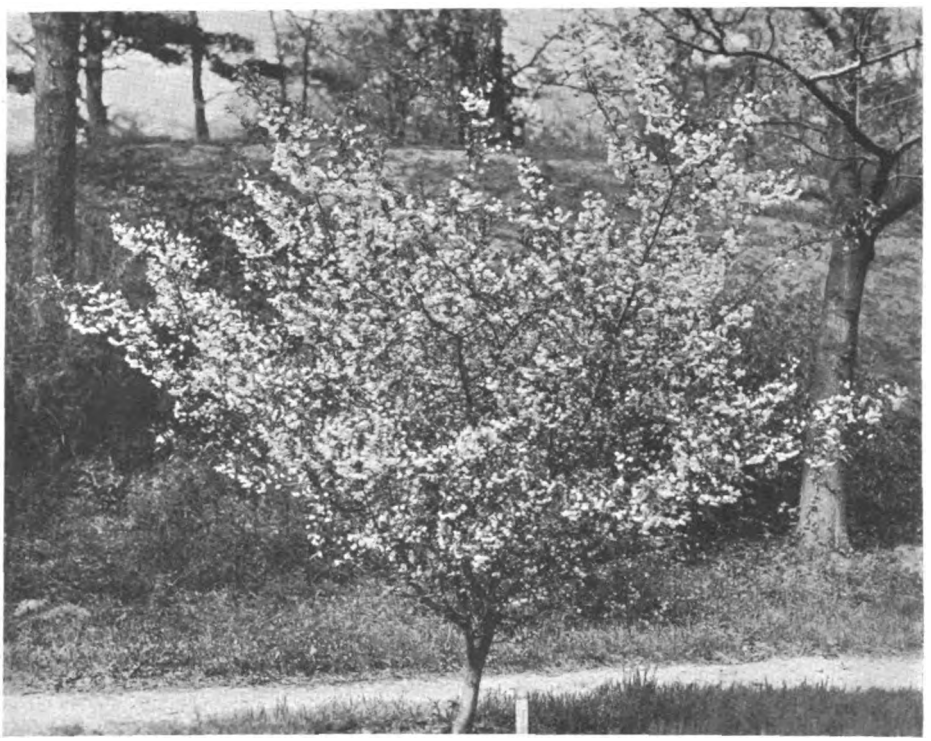
G. H. HEWISON.

A FINE CRAB APPLE, MALUS HALLIANA PARKMANII

THE Arnold Arboretum at Boston is famous for its large collection of crab apples. Especially when the Chino-Japanese species and forms are in flower they are quite a sight. Among the double-flowered forms there is none that can be compared with the variety Parkmanii of Hall's apple. This is the true Kaido of the Japanese.

Before it came to Europe it had been sent to America, where it flowered first in the garden of Francis Parkman near Boston. The type, too, of M. Halliana came first to America in 1863 by G. R. Hall, after whom it has been named. Its origin had been doubtful for quite a time, until it was found by E. H. Wilson in a wild state in western Szechuan, near Tachien-lu. When I was dealing with the genus for my illustrated handbook in 1906, I saw a specimen collected by Fortune at an unknown locality in China that had been referred by Hemsley to M. spectabilis. I stated that it probably belonged to M. Halliana. In foliage and flowers this species certainly much resembles M. spectabilis, which has not yet been collected in a wild state, but is said to come from northern China. It has been known in Europe since 1780, but is unknown even as a cultivated plant in Japan. M. spectabilis has much larger fruits, with a persistent calyx which is deciduous in M. Halliana. The nearest ally to it is M. theifera, a very handsome apple, widely distributed in the mountain regions of western China into Assam. When in flower it looks more like a cherry than an apple, and it is of great horticultural value. Its flowers are, however, pure white, while in M. Halliana the rose coloured flowers are much more conspicuous. Of the variety Parkmanii the colour of the flowers almost equals that of a peach. The fruits of M. Halliana, as well as of M. spectabilis and M. theifera, are of no beauty. Of M. Halliana the fruits have the size of a large pea, they ripen very late in the fall and become brownish red. The illustration shows a flowering plant in the Arnold Arboretum in May, 1916.

CAMILLO SCHNEIDER.



ONE OF THE BEST DOUBLE FLOWERED JAPANESE CRABS.

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MORE ABOUT THE CHELSEA SHOW

SWEET PEAS

Growers of sweet peas under glass had many anxious moments before the Show, but the welcome change in the weather set their minds at rest, and they were able to display most beautiful spikes of bloom. With their magnificent arrangement of general greenhouse annuals, Messrs. Carter and Co. had many splendidly grown spikes, which were noteworthy for the length of stem, as well as for the size and brilliance of mass colours. Besides a wide range of the standard varieties, which are well known to all sweet pea lovers, they had some excellent new sorts. Ruffles, lovely rosy lavender of large size; Mrs. H. Byford, glowing with fascinating shades of pink; Beacon (its orange colour lit up the collection splendidly); Purple Beauty, well named; Queen Marie, a valuable bicolor with an orange standard and crimson lake wings; Mrs. A. Searles, bright cerise; Enid, pale cream; Superb, of Picture type and rich pink flushing; Geisha, old ivory colour delicately flushed with the palest pink; and Raynes Park, silvery lavender, are the names of most of their novelties of decided merit.

Novelty sweet peas were also freely shown by Messrs. Robert Bolton and Son, and chief among them was the wonderful silvery lavender Wembley, which was the silver medal variety at the trials of the National Sweet Pea Society last summer. Royal Pink is a rich glowing flower, reminiscent in type of that ever popular variety, Picture; Black Bess is the nearest approach to a black sweet pea that has yet been seen—smoky maroon is, perhaps, the best description of its colour. Ivory Picture, which won a certificate of merit last year at the trials was shown in even greater beauty than at the Syon House gardens. Besides these splendid new sorts, Messrs. Bolton and Sons had an extensive collection of the older sorts, such as Picture, Mrs. Arnold Hitchcock, R. F. Felton, Powerscourt, Wizard, and all were of the same high quality and arranged with great taste.

A skilful arrangement was also shown in the very extensive collection of Messrs. Dobbie and Co., where many lovely new sweet peas were to be seen. Magnet is a fascinating salmon pink; Ruby well describes the colour of this rich variety; Mermaid is of lavender tone; while Royal Sovereign, one of the best of orange coloured sweet peas, provided a mass of glowing colour. Then there were three sorts which are probably the best trio ever raised abroad. These are Sylvia and Miss California, of most fascinating pink shades, and both received awards at last year's trials. The third is Youth, a chaste and lovely picotee-edged flower. Of the older sorts space will permit mention of only Constance Hinton, the best of whites; Majestic, cream; and Grenadier, a glorious scarlet. One of the very best of their large vases is as yet unnamed, and is known as Lavender No. 100, a most lovely flower.

Novelties in sweet peas were also freely shown by Messrs. Alex. Dickson and Sons.

MESSRS. BOLTON AND SONS EXTENSIVE COLLECTION OF SWEET PEAS.

Mermaid, pale lavender; Magnet, vivid pink shaded with salmon; Crusader, orange pink; Dainty Maiden, a large flower of blush pink colouring; and Stella, a magnificent cream picotee with a definite rosy margin, were the names of the most striking. Among the standard sorts worthy of mention were Faerie Queen, Purple Perfection, Hawlmark Pink, and the lavender Powerscourt. Besides these and many more, they had vases of four seedlings of considerable merit.

TULIPS

There were quite a large number of tulips exhibited this year, and when the weather conditions before the Show are taken into consideration, it was a pleasant surprise to see such good collections. Many of the same varieties were shown by each exhibitor. At the beginning of the Show the tulips looked in perfect condition, but very soon they opened too widely and began to bend over, so that their true shape and form could not be fully appreciated. The increasing popularity of the Parrot tulip was clearly shown by the number of this type exhibited. They are very effective, but the selfs are hard to beat, especially massed in beds or borders.

Messrs. Dobbie and Co. had a splendid collection of tulips, varieties of Cottage, Darwin and Parrot tulips were chosen. Dido was a large, handsome flower, orange-red in colour and edged with yellow. King George was a good carmine-red Darwin tulip and Swanenburg (white), Harry Veitch (a deep crimson), Farncombe Sanders (scarlet), Euterpe (mauve), Isis (brilliant crimson), Violet King, Julie Vinot (a soft rosy-pink), and International (purple), were others belonging to the Darwin class. Cottage tulips, too, were well represented, and among them were some very fine colours, with the exception of some of the bronzy and bluish-mauve tulips, which are not considered beautiful by the majority of gardeners. Walter T. Ware was a lovely golden yellow Cottage tulip, Zany, an effective striped crimson, The President a rich orange, and at the back of the stand the Parrot tulip Markgraaf made a striking effect, with its wide open yellow petals striped with red.

An even larger exhibit of tulips of every class was staged by Messrs. Barr and Sons. The varieties they were showing were particularly interesting. A strange coloured tulip was Viridiflora, with its green and yellow petals. Quaintness was another distinct variety. Loveliness, a rosy pink; Isis, a brilliant crimson, shaded blue at the base; and Salmon King, were some of the Darwins shown. Ronald Gunn is a poor coloured tulip and is not effective. Mrs. Kerrel was a pretty shaded rose and amber Cottage tulip. Some of the yellows and oranges were exceptionally fine on this exhibit. Mrs. Hoog was a beautiful clear, light yellow. Gesneriana lutea and Inglescombe Yellow, two deeper yellows, stood out against the glowing red of Feu Brilliant and the deep shades of Zulu.

Groups of Petrus Hondius, Isis, Professor Rawenhoff and Mr. Farncombe Sanders, made vivid patches of colour among the tulips exhibited by Messrs. R. H. Bath. Countless varieties were shown by this firm, and the flowers were large and of good shape. Zomershoon was an attractive white and red variety; John Ruskin, a large apricot flower, and Faerie Queen, a mauve with yellow edged petals, together with Moonlight, Perfecta, Scarlet Perfection and Opal were a few of the best.

The Maytham Gardens selected a few of the self-coloured tulips to form their exhibit. In many ways the individual varieties can be better appreciated by this arrangement, but it does not cater for the varied tastes of the general public. Ellen Willmott, a clear primrose yellow; Mrs. Potter Palmer, purplish crimson; King Harold, blood red; La Tulip Noire; and Faust, both very dark, together with Orange Perfection and Chestnut, were some of the best varieties in this group.

Tulips from the Welsh Bulb Fields were staged by Mr. W. A. Watts. Several varieties which were seen on this stand were exhibited by no other firm. Panorama, a rich chestnut red Breeder; Tak Van Poortvliet, a dark red; Gustav Doré, a pale rose Darwin; Solomon, a mauve Cottage; Ida Scott, a deep mauve Darwin; and Marcella, a bright reddish maroon, were typical of the varieties exhibited. Neither Corydon nor Crepuscule were good colours, but the soft shades of Amber and Psyche are suitable for massing with some of the deeper tints.

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Mr. J. Pearson had a good stand of tulips, and among them Inglescombe Pink, Feu Brilliant, Farcombe Sanders and Andromache, were very effective. Frans Hals, clear violet; Orange King; Velvet King, a shining velvety purple, with a clear yellow base; Retroflexa superba and Marconi, were a few of the best.

Several fine varieties were shown by Mr. Ernest Paul, and among them Yellow Picotee, Yolande, Honeymoon, Prince of Wales, the bronze orange La Merveille, the soft apricot Darwin Afterglow, Roi Soleil and Wilberforce.

Some of the tulips of Messrs. Toogood and Sons, Limited, were very good in form, and the flowers were borne on long strong stems. Parisian Yellow, one of the tallest yellow May-flowering tulips; William Pitt, a glowing deep scarlet Darwin with a blue and white base; Princess Elizabeth, a vivid rose Darwin; and Europe, a scarlet Darwin shaded rose and with a pure white centre, were the most noticeable varieties.

The only ground group of tulips was staged by Mr. Herbert G. Longford. Blocks of separate varieties were bedded in moss; the exhibit could have been more effective if brighter and better coloured varieties had been selected. Some of those chosen were Nora Ware, a silvery lilac; Bronze Queen, a bronzy orange; Moonlight, a large primrose yellow flower; Bartigon, a carmine crimson, edged with purple; and William Copeland, a mauve shaded Darwin.

THE MAGNIFICENT GROUP OF TULIPS STAGED BY MESSRS. DOBBIE AND CO.

HARDY PRIMULAS

Of late years, there is no genus of plants save rhododendron which has come so much before the public eye as the primula. From a mere handful of species twenty years ago, the number has gradually increased year by year until now they run into hundreds. China—that wonderland of trees and flowers—has supplied the majority of these, and the horticultural public owe a debt of gratitude to those amateurs, and no less to the collectors, whose enthusiasm and keenness have resulted in such a wealth of brilliant species and forms of this ideal rock garden and woodland denizen. From the cliffs and woodland glades of China is a far cry to these islands, yet, notwithstanding their new climatic conditions, the plants staged at Chelsea would do fair to rival their Chinese relations.

That a boom in primulas has arrived was very evident by the large numbers which were staged by many firms in their rock garden exhibits and also by others, such as Dr. Macwatt, who made them their sole attraction.

In the trade groups the most interesting was that of Messrs. Oliver and Hunter, Moniaive, Dumfriesshire. As readers are doubtless aware, this firm specialise in the genus, and the evidence tha tthey meet with unqualified success in their cultivation is furnished by the well grown plants of many species and varieties which they put up. From the dwarf and rather rare Primula aurantiaca—perhaps better known to enthusiasts as 21501 Forrest—to the tall, handsome and more common P. pulverulenta, one met all grades. In the sikkimensis clan, there were several plants of the type species which, if examined closely, showed the enormous variation which is met with in this species. Another member, P. flexilipes, of more slender habit than sikkimensis and with uptilted green bells of a pale yellow colour, was also there. The dainty P. Giraldiana was representing the muscaroides group and was characteristic with its white mealy stems and handsome slightly drooping violet flowers. A few elegant plants of the giant form of P. Littoniana, one of the most popular of the muscaroides, were also there. The large deep lilac cones of this species attracted considerable attention on this table. The candelabras were also to the fore in such species as PP. Beesiana and pulverulenta; while P. Cockburniana was near by with its almost flame-coloured flowers. P. anisodora was there and is always interesting with its dul maroon flowers with a narrow yellow eye. This species might be tried in any future hybridisation work. The results, if successful, would doubtless be full of interest, as the progeny would carry, we should think, unusual coloured flowers. There were many others here, but space forbids a more detailed report. It suffices to say that the primula lover could have spent a most interesting hour comparing the various species, noting their characteristics and learning their peculiarities.

Dr. Macwatt, as is his wont, staged an excellent little table of species and hybrids. PP. capitata, Mooreana and crispata were all there upholding the capitata group, so characteristic with their mealy stems and dense flower clusters. P. Veitchii, representing the cortusoides set, was there, while close by was the dainty P. scotica and the graceful P. effusa. P. chionantha, with its white flowers and sturdy foliage covered with a light, almost golden, meal, was the delegate of the nivalis group, which contains some of the best of our early-flowering primulas. That rather difficult "doer," P. Forrestii, was present, looking quite happy alongside well grown plants of P. Rusbyi. These were, to some extent, overshadowed by the taller and more handsome PP. Littoniana and sikkimensis, but, nevertheless, have a charm all their own. That Dr. Macwatt is still a power to be reckoned with in the world of primulas is unquestioned, and we can only await with expectancy what the exhibit may bring forth in the way of novelties next year.

A CORNER OF MESSRS OLIVER AND HUNTER'S EXHIBIT OF PRIMULAS.

Another exhibit of note was that of Lady Aberconway and the Hon. H. W. MacLaren of Bodnant. Many rare gems, including P. Reidii, were to be seen here all looking well, although, unfortunately, when these notes were written, several had not unfolded their dainty blossoms. P. aurantiaca, which flowered for the first time at Kew last year, was there, with its pretty yellow flowers shading to a deeper yellow in the eye. It is not exactly a species whose beauty enraptures one, but, nevertheless, it holds its own peculiar charm. Of the cortusoides set, we noted P. lichiangensis; while the purple secundiflora was there from the sikkimensis section. Of the "Maximowiczii" section we found P. szechuanica with its floppy flowers and reflexed petals of rather a disappointing greenish yellow colour. The foliage, however, is attractive, with almost white veining on a

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light green ground. One of the marsh forms, P. Wardii, was present, showing the enormous variation in its flower colour from lilac to mauve. Another interesting species was P. spærocephala, with its mauve mop-headed flower clusters covered in meal. The dainty and fine violet flowers of P. effusa were to be seen nestling beside well grown plants of P. Forrestii; while the lilac rose nodding flowers, almost white with farina, of P. chrysopa also called for admiration. There were many other interesting ones about which much could be written, but space forbids. In conclusion, we offer our congratulations to these keen amateurs and also to their gardener on their excellent exhibit, which was full of interest.

The only other sole exhibit of primulas was that staged by the Aldersey College. This consisted of well grown plants of P. helodoxa laid out in grass, producing a most effective and natural result.

The majority of the alpine exhibitors included either a few species or hybrids on their stands. P. pulverulenta and hybrids including the Bartley strain were especially common. Messrs. Bakers included such species as Cockburniana and helodoxa; while the Chalk Hill Nurseries had Bulleyana, and Messrs. Bees the rare P. chrysopa.

The primula exhibits were on a much higher level than last year, and the standard of excellence reached this year by the majority of the exhibitors will be found hard to equal and still more so to surpass.

ALPINE PLANTS

Although the rock plants did not include many new introductions or thrilling rarities, they showed an even greater variety than last year and, in spite of the backwardness of the season and the earliness of the Show, very few half-hardy plants were called in to help the display. So that a generous opportunity was given to the rock gardener of making personal acquaintance with a very large number of species, almost all of them easily grown and many of them uncommon.

Of general tendencies it could be noted that Gentiana angulosa seems to be gaining appreciation as a vigorous, large and easy form of G. verna. Gentiana pyrenaica made a rather tentative appearance on several stands, but its colour, gentian blue suffused with violet, which is exquisite in even a small clump, is too subtle to show to advantage in a single flower, and as yet only very young plants are being exhibited. If it proves more tractable in cultivation than heretofore, it will be a most valuable re-introduction. It was shown by Messrs. Clarence Elliott and Co. and Messrs. Maxwell and Beale.

Aquilegia flabellata was shown by so many exhibitors that it may be hoped that this beautiful and easy Japanese columbine will soon become more widely known and appreciated. It is quite a dwarf plant, making a clump of fat, grey-green foliage about 8ins. high and carrying its large flowers of pure white (sometimes faintly tinged with lavender about the spurs) very freely on short, stout stems.

Another, much rarer and very interesting columbine, A. viridis, was shown among the new plants by Mr. G. Blaythwayte, and has a fantastic elegance to match its remarkable colour. Two other rock plants, a form of Anemone sylvestris, were shown by Messrs. Jones and Ingwersen, and Viola pedata bicolor by Messrs. Bowell and Skarratt.

Messrs. Prichard and Co. showed several uncommon plants, including a valuable new introduction in two species of cyathodes, little heathery plants from the New Zealand alps with small, waxy-white trumpet flowers very sweetly and strongly scented. C. Fraseri is slightly more compact than C. ericoides, but both are quite dwarf. They are said to have proved perfectly hardy in this climate. The same firm showed Heeria elegans, a Mexican of rather doubtful hardiness but well worth the precaution of taking cuttings to see the winter through in a cold frame. It forms a close mat of dark green oval leaves, from which it throws out long trailing stems each carrying a single large flower, suggesting a four-petalled rubus of deep magenta. Cistus umbellatus, white flowered and very neat and refined made a good background to it. Other interesting plants were the delicate shell pink form of Ramondia pyrenaica and Galium olympicum that imitates a slab of very dense moss till it becomes covered with its small greenish white flowers.

Messrs. Cheal showed Erodium macradenum with apple blossom pink flowers whose two upper petals are marked with a spidery blot of inky purple; E. amarum, a dwarfer woollier form of E. absinthoides, with a profusion of white flowers just flushed with pink; Ourisia coccinea in a form which really does flower; and Viola Thuringia a jaunty harlequin seedling of V. tricolor with the upper petals velvety violet and the lower white with one sharp notch of the violet.

Messrs. Clarence Elliott and Co. showed a good dwarf form of Primula farinosa, deep pink and in some specimens almost red; Orchis ustulata, a minute pyramid of flowers in lavender and white chintz with chocolate-coloured buds at the apex; a finely flowered specimen of Daphne rupestris; Ranunculus parnassifolius; and Viola septentrionalis, a cheerful rampant white violet from America with a blackish violet eye and pencilled eyelashes.

Messrs. Reuthe showed a fine large bush of Erinacea pungens, a silvery, spiny hummock set with bright lavender pea flowers and quite hardy on light soil, though it comes from Spain; Erodium petræum with grey, ferny leaves and flowers faintly flushed and delicately veined with pink; Plantago nivalis, a plantain that has strayed into the mountains and become covered with long, silky white hairs; and Cornus suecica, one of our rarest native plants, a woodlander, suggesting a minute trillium with a black centre.

Mr. Frederick Wood of Ashtead showed a deep pink hybrid of Anemone sylvestris, "Merton Rose," which gives the picture of a very slender single-flowered Anemone japonica (a new introduction); a good mossy phlox, Clear's Seedling, which covers a very dwarf and compact cushion with smallish flowers of a warm deep lavender; some hearty clumps of Oxalis enneaphylla, whose great pearl white goblets are so surprisingly large for such a small plant and harmonise so well with the cool grey-green leaves.

Messrs. Waterer showed the very choice Iris gracilipes with lavender flowers, curiously frail and silken for an iris, carried on stiff, wiry stems; Roscœa cautlioides, that carries its crinkled flowers of luminous sulphur yellow a little awkwardly, a defect that deserves to be remedied by careful selection; Wahlenbergia serpyllifolia, and Pinguicula grandiflora.

Messrs. Gavin Jones and Ingwersen brought together a collection of rare and very interesting plants. Linaria nevadensis, flowering for the first time in England, a slender, trailing snapdragon with velvety brown flowers almost black at the lip, a curious and beautiful colour; Genista horrida, a very dense silvery hedgehog covered in summer with golden gorse flowers; Potentilla fragiformis, with thick, hairy strawberry leaves and soft yellow flowers nearly 2ins. across with a faint ring of orange at the centre; Myosotis spathulata, a dense mat of small spoon-shaped leaves scattered, though rather sparsely, with stemless white forget-me-nots, a new plant from the Antipodes; Ranunculus graminifolius, throwing up heads of glorified and stiffly distinguished buttercups from a tuft of grey, grassy leaves, an admirable plant, though seldom seen in gardens.

Messrs. G. H. Crow showed well grown plants of Dianthus neglectus, a deeply coloured form of Viola Bosniaca and Malvastrum Monroanum, a good plant with trailing sprays of crushed strawberry flowers, but not safely hardy except in a warm wall.

Messrs. E. Scaplehorn showed Lewisia columbianum, a rare plant in cultivation, which gives the impression of a large-flowered Saxifraga Cotyledon, though the white flowers are faintly flushed with pink and delicately veined with red; Dianthus versicolor, a seedling variety of D. neglectus that opens white and slowly turns deeper and deeper pink, giving a pleasant soft effect in a large clump.

The Backhouse Nurseries showed Rosa Rouletti, which appears among the new plants, and a general collection of well known and well grown plants.

Messrs. W. H. Rogers and Son showed their dwarf conifers, Cupressus tetragona minima and cæspitosa, tight little mounds of dark green, the latter a little more rugged in outline than the former; Pinus beauvronensis, a miniature Scots pine that is making a welcome reappearance in commerce; and Erodium chamædrioides rosea, throwing up a profusion of delicately pink flowers from a dense mat of dark green leaves.

Messrs. Whitelegg showed, among many other plants, Stachys corsica, the one really attractive hedge nettle; and Harpur Crewe, the old soft yellow double wallflower with a sweet scent of mignonette that nearly dropped out of cultivation but has been rescued and revalued as it deserves.

Hemsley's Nurseries contrasted the weird eccentricities of their succulents with the prim daintiness of Androsace lactea and the elegance of Erodium pelargonifolium, whose blotched petals faintly suggest an odontoglossum.

Messrs. Skelton and Kirby's exhibit was notable, among other things, for Erysimum rupestris (pulchellum), a very neat little alpine wallflower in sulphur yellow.

Messrs. Rogers of Pickering seemed to specialise in aromatic plants. Origanum aureum, a compact golden marjoram; Thymus nitidus; and a thyme with white flowers densely spotted with crimson named T. puciflorus.

Sheppard's Nurseries showed the white form of Papaver alpinum and Potentilla ambigua, whose flat, golden flowers are so unexpectedly large for the neat tufts of grey-green foliage.

Messrs. Bakers of Wolverhampton showed Haberlea virginalis, which comes nearer than most albinos to improving upon the type, and a rather greyish form of Meconopsis rudis.

Messrs. Maxwell and Beale showed Gentiana pyrenaica and clumps of Andromeda tetragona, both belying their reputation by looking very vigorous and hearty.

Messrs. Tucker's miniature garden was very beautiful in the mass, and also included some interesting individual plants. Œnothera Nuttallii with solitary evening primroses on a rosette of spidery dandelion leaves; Daphne arbuscula, rather like D. petræa growing into a little tree instead of a bush; the magnificent large form of Edraianthus serpyllifolius; and several happy and healthy plants of the most distinguished and challenging of high alpines, Androsace pyrenaica.

Mr. J. Wells, jun., showed Trifolium uniflorum, a prostrate clover from Asia Minor, not a very brilliant thing in itself, but useful as a dull rosy purple carpet for more brilliant plants, such as Geum Borisii, which made a great patch of old gold near by it.

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STOVE AND GREENHOUSE PLANTS

Though gardening nowadays is much more an affair of the open air than it used to be yet there is usually a tolerably good collection of stove plants at Chelsea, while splendid strains of the more usually grown greenhouse plants are always on view. The display this year was of rather more than average quality, and the climatic conditions tended to keep the less hardy exotics happy-looking.

For combined richness and brilliance of colouring there was no exhibit to compare with Messrs. Blackmore and Langdon's splendid bank of double begonias in the first section of the great tent. Every plant was of perfect habit and furnished with blossoms of the largest size and most perfect camellia form. One could select no particular variety as surpassing the rest in beauty, but the orange-apricot Lord Lambourne attracted attention because of its bold massing, and the rich shell-pink colouring and bold petals of Hilda Langdon was noted by almost every visitor. For a perfect blending of brilliant colours this exhibit would be hard to surpass. Diversity was, as usual, provided by basket begonias on tall stands.

For conservatory decoration or for a fine display at exhibition, there are few flowers to rival the newer hybrid hippeastrums (amaryllis) and, at some past Chelseas, displays by Sir George Holford have aroused the greatest admiration. There was no separate display of the flower on this occasion, but two groups in Messrs. Carter's handsome exhibit contained many first-rate varieties. The Raynes Park firm associated with these some admirable gloxinias, including separate groups of the velvety mauve Premier and the white-throated rosy crimson Cyclops; with Star cinerarias and the ever-improving butterfly plants (schizanthus), besides various hardy and half-hardy annuals commonly used for exhibitions and for conservatory work at this season—clarkia, salpiglossis, Phlox Drummondii and so forth.

After an hour or so's inspection of flaming mollis azaleas, sweet peas, rhododendrons, pot marigolds and so forth, one's eyes ache for the cooler colouring of foliage plants, and the palms in the Orchid Tent (described elsewhere), another exhibit of hardy cypripediums near by, the garden of grasses outdoors and the caladium groups indoors received at least as much admiration as their more brilliant neighbours. One always looks for an exhibit of caladiums at this Show by Messrs. John Peed, but on this occasion it was a remarkably fine group by an amateur, Mr. H. B. Brandt (gardener, Mr. H. Cook), which first met the eye. It would be difficult so to arrange these fine foliage plants that any lack of harmony could be noted; nevertheless, this was a very clever bit of grouping with light and shade cunningly contrived and a nice balance of mass and colouring. With an almost bewildering number of varieties, each exceedingly beautiful in its own way, it was not easy for the amateur to select a few of the best for his own culture, but most people would consider Mikado with foliage in tones of purplish red and bronzy green as good as any among the heavier shades; while Triomphe de L'Exposition, dusky green, veined and reticulated red and rose, makes a strong appeal in the middle colour range, and fine plants of Caladium Guil Mar, the neat little spotted Sir Ernest Shackleton and Mercédes d'Argent took the eye among those of more delicate colouring.

Messrs. Peed's caladiums were duly found, and a very good lot they were, but used on this occasion as a foil for various flowering greenhouse and stove plants. The newest gloxinia-throated streptocarpus were largely shown, including some of almost salmon pink colouring; and it is along this line that further advance should be looked for, size and substance of bloom being now almost all that can be desired. The herbaceous calceolarias in this group were noteworthy, being of good habit and having a fine range of colouring, while the "pockets" were large and "fat." Gloxinias and codiæums (crotons) were also well shown.

On Messrs. Webb's exhibit were to be found again almost all the kinds (barring the hippeastrums) found in Messrs. Carter's exhibit, but here the large-flowered and star cinerarias made the greatest impression, the numerous plants of "Webb's Superb" large-flowered strain being surely as near perfection as this beautiful flower can be expected to reach. The star varieties were, in their way, equally good. Of the gloxinias, calceolarias and schizanthus it must suffice to say that they upheld the reputation of the firm for these well known specialities. It is to be hoped that no one at the Show who admires Primula obconica overlooked the two groups of richly coloured "gigantea" on show. It is a pity, however, that the blue clings so firmly to the red with this species, thus making the more deeply coloured forms useless for indoor decoration. Altogether a very worthy exhibit.

Mr. H. J. Jones' exhibit of hortensis hydrangeas at last year's Chelsea gave most of us an entirely new conception of the possibilities of the plant, but his effort this year was lighter in arrangement and even more bewilderingly effective. He had a large number of varieties on show, certainly, but the most striking feature was the chameleon-like character of the different sorts. Mme. Moullière is, of course, white or green always, but there was Marechal Foch in every tone from rose through purple with a brilliant blue eye to blue; and Blue Prince, as often as not, was a study in rose and green. Stretches of brilliant blue were, at least in some instances, Mme. Riverain, while corresponding drifts of almost salmony rose proved to be Lancelot. Goliath, Radiant and Parsival were also noteworthy, and the daring combination of vivid green and blue in some plants of the first mentioned would be hard to match with any other flower. Some visitors obviously admired the hortensia, others struggled hard to avoid expressing admiration, but no one could ignore this most impressive group.

Messrs. Godfrey and Son showed a very fine compact strain of Schizanthus grandiflorus, which in sheltered localities should be good for summer bedding as well as for conservatory and indoor decoration.

Messrs. Watkins and Simpson also had a fine group of schizanthus covering a very wide and effective range of colouring, but even more notable was their strain of cineraria which they call "multiflora." This has the freedom to flower of the star varieties, with a compact habit comparable to that of the large-flowered strains. The individual blooms are shapely, intermediate in size between the large-flowered and the "stars" and self-coloured. The colour range is wide, and includes some very beautiful tones. A strain of Salvia splendens called Harbinger retains the normal gorgeous colouring of the type, is of good habit, and specially notable in that the bushy plants on show—and smothered in blossom—had been grown from seed in four months. Only those who have raised Salvia splendens from seed will properly appreciate what an advance this denotes.

The schizanthus was much in evidence this year. Another fine group of this flower was noted on the stand of Mr. Alfred Dawkins, but these "dwarf hybrids" were obviously nearer the wisetonensis set than the grandiflorus. Beautiful rosy tones were much in evidence, and the habit of the plants left nothing to be desired.

The zonal pelargonium is no longer a favourite flower, yet its bright colouring and ease of culture should commend it to the amateur who wishes a gay display at almost any season. Mr. R. J. Case had a very bright display which included the salmon-rose Taurus, the double salmon The Speaker and the quaint starry Fascination. The brilliant rosy scarlet ivy-leaved variety Sir Percy Blakeney was also in evidence.

Messrs. Jarman and Co. supplemented their incomparable sweet sultans with bunches of zonal pelargonium blossom and plants of a number of kinds of scented-leaved pelargoniums, which, like other kinds with scented foliage, are fast returning to favour. Star cinerarias were also shown.

Messrs. L. R. Russell set up a fine group consisting almost entirely of the choicer stove species, though the nearly hardy Hoya carnosa (just opening its waxy bloom trusses) was included. Splendidly flowered specimens of anthurium and the pretty Clerodendron Balfouri stood out from a grouping of caladiums, codiæums, aralias and dracænas. Of the last named Père Charon and Victoria were especially attractive.

Messrs. James Cypher and Sons in a group mainly consisting of orchids had fine plants of the very useful Statice intermedia and also brilliant anthuriums.

PALMS & SUCCULENTS

Messrs. Robert Green, Limited, had a large collection of palms, and many of them were fine trees. Large specimens of the spineless palms, Kentia Belmoreana and K. Fosteriana, were exhibited. The glaucous leaflets of Cocos australis were effective, and very graceful were the spineless palms, Areca Baueri and A. sapida, whose pinnate leaves form terminal clusters. Chamærops Fortunei, the fan-leaved palm, and the noble Phœnix canariensis, which is of rapid growth, and the pygmy Phœnix, P. Rœbelinii, with its shiny, dark green leaves, were among the collection. Raphis flabelliformis and Cocos flexuosa, were also in good condition.

Two groups of succulents were exhibited and both were varied, and the plants were remarkably healthy. These curious plants possess a fascination of their own, and although they are not grown to any large extent, small collections of tiny succulents growing in bowls are becoming very popular. Mr. S. Smith had the largest exhibit, and many interesting specimens were among his plants. Echinocactus Grusonii was looking in very good condition; Cereus flagelliformis, with its long, snake-like growth; Mamillaria pusilla, with whitish flowers about to bloom; and the thick columnar Cereus Roezlii, were all noticeable.

Miss S. S. Thompson staged the other exhibit of succulents. Minute pots of healthy-looking plants were very attractive. Mesembryanthemum tigrinum, the hairy Pilocereus senilis, Opuntia clavarioides Mamillaria stellata and M. haageana, were noticeable.

ORCHIDS

Sir Jeremiah Colman, Bt., Gatton Park, Surrey (gardener, Mr. Collier), was awarded a gold medal for an exquisite group of rare species and choice hybrids. Among the former were finely grown examples of Ærides crispum, Maxillaria Sanderiana and a varied assortment of Masdevallias. One of the interesting features was the splendid type of Lycaste Skinneri, the vigorous plants had many flowers of fine substance. Dendrobiums were well represented by varieties of Gatton Sunray and illustre; while cymbidiums included selected varieties of Pauwelsii, Emery and President Wilson. Odontioda Lady Colman and Oda. Madeline were noteworthy for

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their brilliant reddish colour. Lycaste locusta, with large dark green flowers, proved most interesting to many of the visitors.

Messrs. Charlesworth and Co., Haywards Heath, received a gold medal and the congratulations of the Council for a magnificent group, every plant being displayed to its fullest effect. The centre was composed of many plants of Odontoglossum crispum xanthotes and other white-flowering kinds, thus making a fine contrast to the red-flowering odontiodas on each side. Among the newer hybrids were distinct odontonias, many miltonias with blotching on the labellum, and some well coloured brasso-cattleyas. Lælio-cattleyas were best represented by Fascinator, which is still a favourite; while cymbidiums were noted in Ceres with three vigorous spikes of carmine-coloured flowers.

Mr. H. T. Pitt, Rosslyn, Stamford Hill (gardener, Mr. Thurgood), was awarded the challenge cup given by the trade orchid growers, thus winning it for the second time. His group contained many rare species such as two finely grown plants of Bulbophyllum macrobulbon, fine forms of Cattleya Mendelii, Cattleya citrina, with its pendulous flowers of citron-yellow colour, and a large plant of Ansellia africana. Among the cypripediums were Enchantress, with flowers of emerald-green colour, and the pretty glaucophyllum. Miltonia William Pitt, of rich crimson colour, came in for well deserved appreciation.

Mr. Albert C. Burrage, Beverly, Mass., U.S.A., created a most unexpected spectacle by sending over a large quantity of hardy New England cypripediums, accompanied by pine trees and American ferns, the whole consignment weighing upwards of five tons. The plants came over early this year in cold storage and were brought into flower in Mr. E. M. Preston's garden at Hayes, Kent (gardener, Mr. Woods). This unique exhibit was recognised by the award of a silver-gilt Lindley medal. Mr. Burrage has very generously presented the whole of this exhibit to English gardens, the recipients being Sir Jeremiah Colman, Bt., Lieutenant-Colonel Sir George Holford, K.C.V.O., and the Royal Botanic Gardens, Kew.

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, were awarded a silver cup for a meritorious exhibit containing many excellent cymbidium hybrids, also a large plant of Cymbidium Loweanum concolor. Among the cattleyas was C. Mossiæ Arnoldiana, a favourite of many years ago, also C. intermedia Aquinii, with its petals flushed with purple, and alongside of it the remarkable C. Suavior, which has the petals similarly coloured. Dendrobiums were another feature of this exhibit, and there were many well flowered examples of the popular kinds. Masses of red were imparted by well flowered plants of Renanthera Imschootiana, and at each end was a large batch of Lælio-Cattleya G. S. Ball, with numerous flowers of orange-red colour.

Messrs. Cowan and Co., Southgate, N., were awarded a silver cup for a neatly arranged exhibit, the back of which was composed of the bright yellow Oncidium Marshallianum, aud various cymbidium hybrids, including C. Beryl, with a boldly marked lip, and fine varieties of C. Pauwelsii. A feature of this exhibit was the section of albino cypripediums, these embracing Maudiæ, Emerald, Curtisii Sanderæ and callosum Sanderæ, in all of which the typical purplish colour was absent. Lælio-Cattleya Hassallii alba, with a couple of large flowers, occupied a central position, and among the odontiodas mention may be made of Grenadier, with a branched spike of reddish flowers, and Murillo, with many scarlet-coloured flowers.

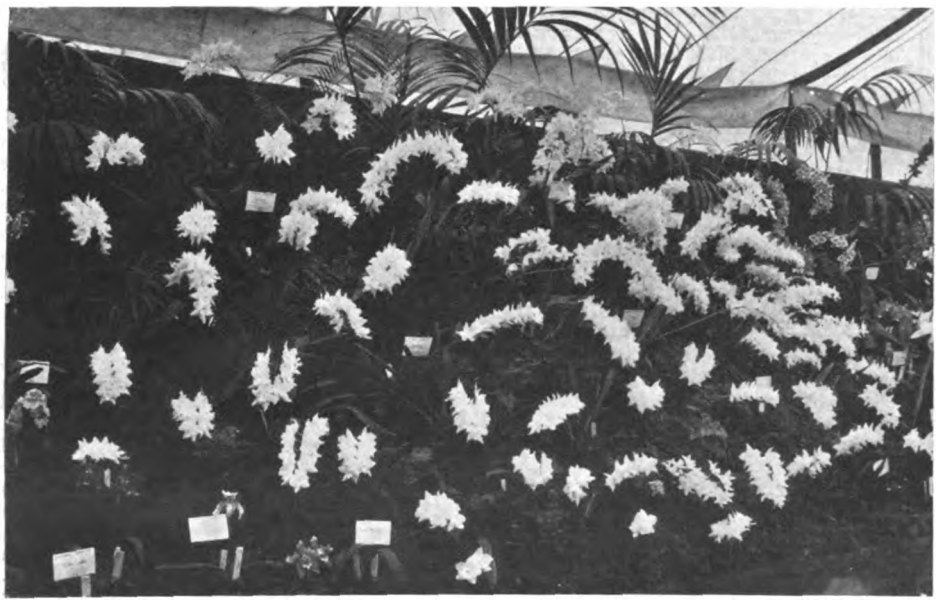
Messrs. Cypher and Sons, Cheltenham, received a silver-gilt Flora medal for an attractive exhibit in which the centre was composed of Brasso-Cattleya Digbyano-Mendelii, with immense flowers having the expansive labellum prettily fringed. On each side were well grown plants of Cypripedium Maudiæ and C. Lawrenceanum, while in front were excellent specimens of Masdevallia species. Lælia purpurata, one of the favourites of the old Temple shows, was here seen in perfection; also Lælio-Cattleya Fascinator, and some strong plants of Dendrobium formosum with large white flowers. An attractive plant was staged in Cypripedium macrochilum giganteum, with three curious flowers, the petals being considerably elongated. Lycaste Skinneri showed up well, and a pretty odontoglossum of yellow colour was seen in a hybrid named Eva.

Messrs. Mansell and Hatcher, Rawdon, Leeds, were awarded a silver-gilt Flora medal for a group containing numerous examples of Lælio-Cattleya Fascinator, always effective at this period of the year. Cattleya Schroederæ and C. Mossiæ stood out prominently, the latter being represented by a variety named striata, in which the segments were stained with a deep rose. Among the cypripediums was a distinct form of Lawrenceanum, with greenish flowers, also C. Godefroyæ, of round formation.

Messrs. Flory and Black, Slough, received a silver-gilt Banksian medal for the best group of cattleyas. Considering the dull season, this exhibit was very praiseworthy. Fine examples were staged in Tityrus, of large size; Heatherwood, equally attractive; and Empress Frederick var. Vesuvius, of rich colour. Albino cattleyas included Irene and Magali Sander, pure white except for some yellow in the throat; and The Bride, in which the yellow is entirely absent. The well known Cattleya Mendelii, formerly seen in quantity at the spring shows, but now scarce, was here staged in a variety having the labellum of violet-purple.

Mr. Harry Dixon, Wandsworth Common, was awarded a silver Flora medal for an effective exhibit containing two large plants of Ansellia africana, somewhat darker than usually seen. On each side were selected varieties of Lælio-Cattleya luminosa and L.-C. Martinettii; while in front were most of the popular cypripediums of the spring-flowering type.

Messrs. Sanders, St. Albans, received a silver Flora medal for a small but choice selection of species and hybrids, the former including Bifrenaria pubigera, with pretty flowers; Cymbidium Devonianum; select forms of Odontoglossum crispum and Cypripedium insigne Sanderæ, the latter flowering out of season.



THE CENTRE PIECE OF ODONTOGLOSSUM CRISPUM ON MESSRS. CHARLESWORTH'S STAND.

NEW & RARE PLANTS

FIRST CLASS CERTIFICATE.

PÆONIA OBOVATA ALBA.—A popular description of this beautiful plant might well be a herbaceous peony with delicately beautiful reddish purple tinted leaves and bearing dazzling white magnolia flowers. The purity of the white cup-shaped flowers is enhanced by the little cluster of bright yellow stamens and green purple-tipped stigmas. It is a native of Hupeh, China. Shown by Mr. J. C. Allgrove.

AWARDS OF MERIT.

ANEMONE SYLVESTRIS SPRING BEAUTY.—This is a greatly improved variety of the snowdrop windflower. The solitary, rounded milk-white flowers are borne on downy stems about a foot in height, rising well above the dwarf cut foliage. Shown by Messrs. G. Jones and Ingwersen.

AZALEA COQUETTE.—A hardy deciduous azalea of uncommon type. Its appearance suggests a hybrid between Ghent and occidentalis varieties, but no information was forthcoming. It may almost be described as a Ghent azalea with larger and more widely expanded flowers, which are of soft pink colour with a yellow standard.

AZALEA MARIAN MARRIMAN.—Of similar type to the foregoing, but of bright yellow colour with orange spots and flushing on the standard.

AZALEA MARY WATERER.—Another beautiful hardy azalea of the same type and lovely creamy white colour lightly flushed on the outer parts of the petals with apple-blossom pink. There is just a suggestion of yellow in the centre of the flowers. These three lovely hardy deciduous azaleas were shown by the executors of the late Mr. Anthony Waterer.

AZALEA MARY.—This is stated to be a cross between A. malvatica and A. Kæmpferi. In general appearance it is a larger-flowered example of the dwarf Japanese azaleas, which are shown so frequently during the spring. The flowers are of bright rose pink colour with carmine spots on the upper segments. Shown by Messrs. T. H. Van Nes.

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CARNATION RED LADDIE.—A reddish old rose coloured sport from the well known variety Laddie, which Mr. Engelmann has shown so consistently well for many months past. The new variety has somewhat larger flowers of splendid shape on long, graceful stems, and its uncommon colour will make it a very popular variety. Shown by Mr. C. Engelmann.

DIOSMA UNIFLORA.—This is a shrubby plant bearing wiry erect stems furnished with narrow linear leaves crowned with five-petalled, widely opened flowers rather over an inch across. The lovely flowers are of milk-white colour, and each petal has a rosy carmine line running from its base half-way up the centre. Shown by the Rev. A. T. Boscawen.

PRIMULA NIVALIS.—A Chinese primula. It makes a fairly dense tuft of long, fleshy, strap-shaped leaves of dark pea green colour, and from these rise slender stems 9ins. to 12ins. high crowned with heads of flattish deep lilac flowers with white eyes. Shown by Mr. A. K. Bulley.

RHODODENDRON A. GILBERT.—Apparently one of the half-hardy hybrids. It bears a large truss of creamy pink flowers which are flushed with rose on the outer parts of the petals. Shown by Mr. T. H. Lowinsky.

R. TITTENHURST BELLE.—A most beautiful "Riviera" variety, obtained by crossing R. Aucklandii with a Corona seedling. It has a particularly long, erect truss, perfectly furnished with large flowers most delightfully stippled with rich blush pink. The central stem and stalks of the flowers are stained deep crimson. Shown by Mr. T. H. Lowinsky.

R. GLORIOSA.—A large truss of beautiful blush pink flowers which are shaded to a darker tone on the edges. The stalks are of reddish purple colour. Shown by Messrs. R. Gill and Son.

R. GOLDSWORTH YELLOW.—The great garden value of this hardy hybrid rhododendron was well seen in the large group on the grass. It is a compact grower and bears medium-sized trusses of deep primrose yellow flowers spotted with green on the upper segment. Shown by Mr. W. C. Slocock.

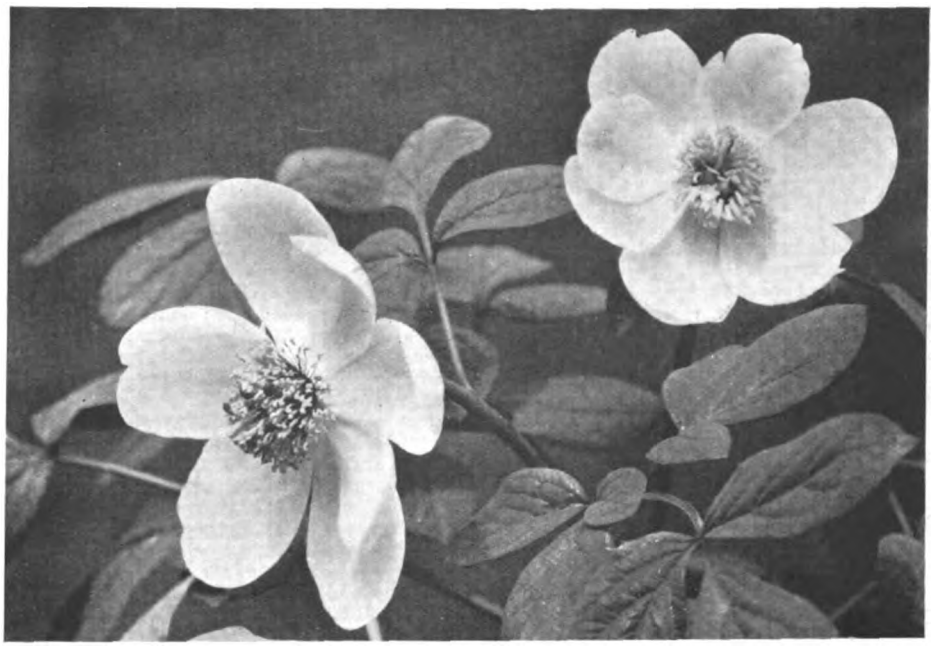
R. LEDOIDES.—A tiny little plant from China, only a few inches high, was shown, and this bore five trusses of fascinating miniature tubular whitish flowers. Shown by Mr. A. K. Bulley.

R. T. H. VAN NES.—A brilliant hybrid rhododendron bearing large trusses of widely expanded flowers of pale blush colour which is deeper on the outer parts of the flowers. Shown by Messrs. T. H. Van Nes.

TELOPEA OREADES.—It is an erect-growing large shrub bearing entire leathery ovate lanceolate leaves and dense heads of rich crimson flowers of similar shape to those of Eribothrium coccineum. The telopas are known as "waratahs" in Australia. Shown by the Rev. A. Boscawen.

ROSA SUPERBA.—A dwarf perpetual polyantha rose of great beauty. The compact floriferous trusses have small fully double flowers of deep crimson colour very slightly flushed with plum purple. Shown by Messrs. Wm. Cutbush and Sons.

STAPHYLEA HOLOCARPA.—Flowering sprays of a deciduous shrub, which is a native of Central China. Flowers of a whitish-pink hanging in short corymbs. Very fine. Shown by Sir George Holford.



THE HANDSOME MAGNOLIA-LIKE BLOSSOMS OF PÆONIA OBOVATA ALBA.

THE MILK WHITE FLOWERS TINGED WITH ROSY CARMINE OF DIOSMA UNIFLORA.

ORCHIDS.

FIRST CLASS CERTIFICATES.

LÆLIO-CATTLEYA HASSALLI ALBA, Cowan's variety (L.-C. Britannia × C. Warscewiczi).—This handsome hybrid bore a couple of large flowers, the sepals and petals of thick texture, creamy white, the roundly formed labellum bright purple with a narrow margin of white, the throat bright yellow. Shown by Messrs. Cowan and Co., Southgate, London, N.

ODONTIODA HIAWATHA VAR. ROYALTY (Oda. Charlesworthii × Oda. Coronation).—A beautiful hybrid bearing an erect spike of eleven flowers of rose tint, the sepals and petals almost covered with brilliant rose-scarlet, thus making a most attractive object. From Messrs. Charlesworth and Co., Haywards Heath.

AWARDS OF MERIT.

CATTLEYA CHELSEA (C. Empress Frederick × C. General Pulteney).—One of the finest cattleyas in the Show. The two flowers were large, the petals broadly developed and of erect habit, deep mauve, the immense labellum crimson-purple, crisped at the margin and with gold veining at the apex of the throat. Exhibited by Messrs. Flory and Black, Slough.

CATTLEYA SUAVIOR VAR. HERCULES (intermedia Aquinii × Mendelii).—The best variety yet seen of this interesting hybrid, in which the peloriate nature of the first mentioned parent is perpetuated in a marked degree. Flowers of rose colour, the petals heavily flushed with purple at the extremity, thus resembling the purple coloured labellum. Shown by Messrs. Stuart Low and Co., Jarvisbrook, Sussex.

CYMBIDIUM VIRGO VAR. GUINEA (Pauwelsii × Woodhamsianum).—One of the showiest of the popular cymbidium hybrids. The vigorous plant carried an extended spike of eighteen large flowers of greenish gold colour, the labellum having a crimson band on the apex of the front lobe and spotting of similar colour on the two lateral lobes. Shown by Messrs. Stuart Low and Co., Jarvisbrook, Sussex.

ODONTOGLOSSUM CRISPUM VAR. PRISCILLA.—One of the finest of the garden-raised plants of this species. The spike had been disbudded to four flowers, which were very large, the petals almost meeting in front of the dorsal sepal. Segments slightly tinged with light rose, the labellum having a few

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reddish spots. This plant also carried a seed-pod. Shown by Mr. Robert Paterson, Stamperland, Cathcart, Glasgow.

ODONTIODA ORESTES VAR. MAJESTICA (Oda. Coronation × Odm. percultum).—The tall spike of this hybrid bore seven flowers with roundly formed segments of a pleasing rose tint and slightly spotted with reddish purple. Exhibited by Messrs. Cowan and Co., Southgate, London, N.

MILTONIA PRINCESS MARY VAR. MAJALIS (Bleuana × Hyeana).—The horizontally produced spike bore four large flowers of the well known M. vexillaria habit. Sepals flushed at the base with crimson, the petals to a much stronger degree, labellum stained with rose, and with a ray-like mask of brownish colour at its base. Staged by Messrs. Charlesworth and Co., Haywards Heath.

CYMBIDIUM VICTRIX (Venus × Alexanderi).—This elegant hybrid bore two erect spikes of large buff yellow flowers, the labellum having a brownish zone around the apex. Shown by Messrs. Sanders, St. Albans.

CULTURAL COMMENDATION.

ODONTIODA CORA VAR. PRINCESS (Oda. Coronation × Odm. eximium).—An excellent cultural result, in which the inflorescence consisted of nineteen large flowers, with well developed colouration. Staged by Messrs. Charlesworth and Co., Haywards Heath.

ODONTIODA WEST POINT BEAUTY (Oda. Bradshawiæ × Odm. eximium.)—A truly remarkable result of cultural ability was seen in this plant, the branched spike carried no fewer than seventy-six well developed flowers of purplish-rose colour. Shown by Messrs. Charlesworth and Co., Haywards Heath.

SUNDRIES

On either side of the long avenue leading from the Hospital entrance to the rock gardens, exhibits of horticultural sundries of every kind were packed tightly together. Along the main entrance as well, more garden requisites were displayed. It was interesting to compare the products of the various firms and to examine all their latest inventions.

Spraying and limewashing machines which were sound in the principle of their design and in material were exhibited by the makers, the "Four Oaks" Spraying Machine Company. The "Four Oaks" "Battle" pattern is one of the best spraying machines on the market for work on a large scale.

Messrs. C. H. Pugh, Limited, were showing "Atco" motor mowers of various sizes.

Tools, insecticides, fertilisers, syringes and all kinds of garden requisites were shown by Messrs. Smith and Ellis, Limited. A small hand sprayer exhibited by this firm has caused many enquiries. This pneumatic machine is called the "Con-o-mist" sprayer, and it is certainly easy to use and quite efficient.

Messrs. James Carter were exhibiting Royal Doulton flower bowls and vases as well as glass vases, and a great variety of sundries. Tools, knives, fertilisers, etc., were there in plenty.

Messrs. Ransomes, Sims and Jefferies, Limited, the great lawn mower firm, had a selection of their mowers.

Messrs. Samuel McGredy and Son, the Irish rose growers, had an exhibit of rose accessories: Fertilisers, insecticides and a fungicide called "Kuremil," prepared for the prevention and cure of mildew.

A sweet perfume came from the stand of Messrs. Allwood Brothers. Among packets of carnation seed and tins of carnation fertiliser were bottles of perfume made from this firm's own carnations.

Messrs. John Shaw and Sons were showing the "Governor" lawn mower both with and without an extra roller attached.

Messrs. Bakers had an exhibit of strong netting and supports for hard tennis court surrounds. This is a line in which they specialise.

Lawn mowers and rollers were shown by Messrs. A. Shanks and Sons, a firm who manufacture some of the most reliable and long-lasting of all lawn mowers. Every kind of lawn mower, including those driven by motor, were displayed.

Among the spraying machines, fertilisers, slug-killers and insecticides on the stand of the Stonehouse Works Company was a handy appliance for distributing fertilisers called the Stonehouse Duplex Distributor.

Messrs. Thomas Green and Son, Limited, had a collection of lawn mowers, and among them there could be found mowers to suit every type of lawn.

A patent and remarkably cheap pruner, known as Camp's "P.C." Pruner, which met with favour from many people, was exhibited by the makers, Messrs. Camp and Co.

Messrs. Abol, Limited, had an exhibit of all the famous "Abol" syringes, spraying machines and spraying mixtures.

Major C. Walker was exhibiting his fruit tree protectors suitable for wall fruit, bush tree fruit and fruit plantations.

Messrs. Robinson Brothers, Limited, were showing, among other sundries, "Carmona" Plant Food, "Velvas" lawn sand, "Multiple" worm-killer, watering cans, tools, syringes and spraying fluids.

Mr. J. Singleton was very busy selling his patent watering can attachment which does away with the need for a rose. The "Nuespray" attachment can be fitted to any size of can.

Mr. John Pinches was showing, besides weather-proof labels, plant-holders and bloom-protectors.

The Chase Continuous Cloche Company were showing vegetables and flowers which have been grown under their cloches. The plants were much in advance of those grown without protection. The firm was also showing a fruit-storing stand.

Hundreds of little plants in square "Fibrex" pots attracted much attention. They were exhibited by Mr. J. N. Harvey. In these pots transplanting difficulties are greatly reduced, as the plant is not removed from the pot but planted without disturbing the pot in which the roots are embedded.

Messrs. Woodworkers, Limited, had two most useful propagating frames which looked to be perfectly sound.

Several blocks of turf, showing the beneficial effects of a special fertiliser, were exhibited by the Key Fertiliser Company.

The House and Garden Sundries Company were exhibiting wall clips, fruit protectors and various horticultural requisites.

Messrs. Corry and Co., Limited, the makers of the well known Corry's white fly fumigant, had insecticides and manures.

A reagent for the conversion of straw, bracken or any garden rubbish into synthetic farmyard manure was exhibited by Messrs. Adco, Limited.

Heating apparatus interests chiefly the owners of large greenhouses; to them the exhibit of boilers manufactured by Messrs. Jones and Attwood, Limited, would appeal.

Vegetables and fruit fertilised by the plant food supplied by Messrs. Prentice Brothers were shown on the stand of this firm. Pure Ichthemic guano, "Tomorite," lawn sand, potato fertiliser, etc., were there.

"Katakilla," a special winter wash, hand sprays and a slug-killer were exhibited by Messrs. Cooper and Nephews.

Every imaginable horticultural requisite was exhibited by Messrs. Thomas Gunn, Limited.

The Willmott Rival Plant Stakes, patented by Mr. H. J. Greenwood, are among the quickest to fix and most invisible of any plant stake.

A cheap rustless and adjustable plant-holder, named the "Ideal," was exhibited by Mr. E. Sydney.

Messrs. Martineau and Smith had a large exhibit of spraying machines and syringes.

The "Diamond" extension ladders, which Messrs. Drew, Clark and Co. were exhibiting, have been reduced in price.

Pneumatic spraying machines were shown by Messrs. Holder-Harriden, Limited.

The J. P. Super Lawnmowers, Limited, were demonstrating the merits of adjustment of their mower by hand wheels; all the working parts being enclosed and running on ball bearings in an oil bath.

The Dryad Cane Furniture Company exhibited "Dryad" cane chairs and tables.

The Cooper-Stewart Engineering Company, Limited, were demonstrating the "Rain King" lawn sprinkler and the "2-Purpose" Rain King sprinkler.

Horse boots, sprinklers, spike rollers, lawn sand distributors, shoe-cleaning apparatus comprised the exhibit of Messrs. Pattisson and Co.

"The Sprayer of a Thousand Uses" was exhibited by the Eclipse Spraying Company.

Messrs. Dennis Brothers were exhibiting the motor lawn mower which gained an award of merit for its excellent work at the R.H.S. motor mower trials held recently.

The Acme Patent Ladder Company had an exhibit of ladders, steps, barrows and trestles.

The bird-boxes in the exhibit of Messrs. Arthur H. Moorton, Limited, were an interesting feature. Sundials, bird-baths and garden ornaments were also shown by this firm.

A varied and good exhibit of garden ornaments, paving both in stone and sand-faced brick, was staged by Messrs. Sanders and Co.

Garden tents, ornaments, garden chairs and other furniture were shown by Messrs. A. W. Gamage, Limited; Harrods, Limited; W. Wood and Son; Sutton and Sons; and Gaze's, who also showed hard tennis courts.

Messrs. Skinner, Board and Co. showed two "Wire-tension" greenhouses; D. Swain and Co., greenhouses, frames, etc.; and W. Duncan Tucker and Sons, Limited, greenhouses and frames.

Messrs. Charles P. Kinnell and Co., Limited, had a large exhibit of greenhouse heating apparatus, boilers of kinds such as the "Robin Hood," the "Bisson" and the "Rochford." They were also showing radiators for heating a winter garden.

A variety of ornaments in artificial stone were shown by Messrs. Pulham and Sons.

Mr. Ernest Dixon had a few teakwood garden chairs and tables by the side of his sunk garden.

Owing to lack of space, we are unable to complete the list of sundries until our next issue.

OFFICIAL LIST OF AWARDS

CHALLENGE CUPS.

Sherwood Cup, for the most meritorious group (excluding orchids): To Messrs. C. Engelmann, Limited.

"Daily Graphic" Cup, for the best rock garden: To Mr. G. G. Whitelegg.

Cain Cup, for the best exhibit by an amateur: To the Hon. Sir John Ward, K.C.V.O. (gardener, C. Beckett).

Orchid Challenge Cup, for the best exhibit of orchids by an amateur, on a space not exceeding 60 sq. ft. Only those may compete who employ not more than three assistants in orchid houses (including the head gardener): To H. T. Pitt, Esq. (gardener, F. W. Thurgood).

SPECIAL CUPS.

Allwood Carnation Bowl, for the best group of carnations exhibited by an amateur: To Sir William E. Cain, Bt. (Executors of the late).

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Roses.—Gold medal: To Hicks, E. J. Silver cups: To Allen, A. J. and Co. Silver gilt flora medal: To Cutbush and Son, Limited. Silver-gilt Banksian medal: To Cant and Sons, B. R. Silver flora medal: To Cant and Co., F.; Paul and Son, Wm. (Chaplin). Silver Banksian medals: To Pemberton, J. H.; Prince, George.

Formal Gardens, etc.—Gold medal: To Wallace, R. and Co.; Carter and Co., J. Silver cups: To MacDonald, J.; Vernon Bros.; Winder, R. Silver-gilt flora medal: To Bakers, Limited; Cuthbert, R. and G.; Dixon, Ernest. Silver flora medals: To Wood and Son, Wm.; Cheal and Sons, Limited; Gaze and Son, Limited, W. H.; Johnstone Garden Contractors, Limited; Maxwell and Beale. Silver Banksian medals: To Horsecombe Quarries; Klinkert, J.

Tulips.—Gold medal: To Barr and Sons. Silver cups: To Dobbie and Co., Limited. Silver gilt flora medals: To Watts, W. A.; Longford, H. G. Silver-gilt Banksian medal: To Bath, Limited, R. H. Silver flora medals: To Pearson and Sons; Maytham Gardens. Silver Banksian medal: To Paul, E., and Co.

Carnations.—Gold medal and congratulations: To Engelmann, C., Limited. Gold medal: To Allwood Bros. Silver-gilt Banksian medal: To Low and Co., Stuart; Douglas, James. Silver flora medal and Allwood Cup: To Cain, Sir W. E., Bt. (Executors of the late). Silver Banksian medal: To Luxford and Co., Keith.

Fruit and Vegetables.—Gold medal: To Ward, Major the Hon. Sir John (gardener, C. Beckett); Gibbs, Hon. Vicary (gardener, E. Beckett). Silver cups: To Bunyard and Co., Limited; Laxton Bros. Silver Hogg medal: To Rivers and Son, Limited. Silver Knightian medal: To Sutton and Sons. Bronze Hogg medal: To Vickers, V. C. (gardener, W. Watkins).

Rock Gardens.—Gold medal: To Whitelegg, G. G. Silver cups: To Brook, H.; Pulham and Son. Silver-gilt flora medal: To Elliott, Limited, Clarence. Silver flora medal: To Cutbush and Son, Limited. Silver Banksian medal: To Hodsons, Limited; Jones and Ingwersen, Gavin.

Orchids.—Amateur Exhibits.—Gold medal: To Colman, Sir J., Bt. (gardener, J. Collier). Silver cup: To Pitt, H. T., Esq. (gardener, F. W. Thurgood). Silver-gilt Lindley medal. To Burrage, A. C., Esq.

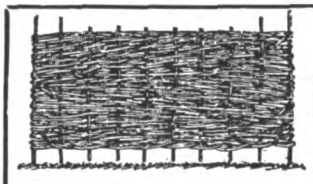
Orchids.—Trade Exhibits.—Gold medal and congratulations: To Charlesworth and Co. Silver cups: To Cowan and Co.; Low and Co., Stuart. Silver-gilt flora medals: To Cypher and Sons, J.; Mansell and Hatcher. Silver-gilt Banksian medal: To Flory and Black. Silver flora medals: To Dixon, H.; Sanders,

Sweet Peas, etc.—Gold medal and congratulations: To Dobbie and Son, Limited. Silver-gilt Banksian medals: To Dickson and Sons, Limited, Alex.; Smith, S. Silver flora medal: To Thompson, Miss S. Silver Banksian medal: To Bolton and Son, R.

Alpine Plants, etc.—Gold medal and congratulations: To Aberconway, Lady and the Hon. H. D. MacLaren. Silver cups: To Oliver and Hunter. Silver-gilt flora medals: To Hemsley, H.; Rogers and Son, Limited, W. H.; Jones and Ingwersen, Gavin; Tucker and Sons, R.; Elliott, Limited, C.; Macwatt, Dr. J. Silver-gilt Banksian medals: To Bakers, Limited; Bowell and Skarratt; Prichard and Sons M.; Carter Page and Co., Limited; Maxwell and Beale; Prichard and Co; Scaplehorn, E.; Walters, W. H. Silver flora medals: To Backhouse Nurseries (York), Limited; Cheal and Sons, J.; Aldersey Horticultural College; Central Garden Supplies; Sheppards; Skelton and Kirby; Rogers, R. V. Silver Banksian medals: To Crow, Esq., G. H. (gardener, A. Tingley); Reuthe, G.; Hopkinson, Miss K. Bronze flora medal. To Dixon, E.

Shrubs.—Gold medal: To Wallace, R. W., and Co. Silver cups: To Cuthbert, R., and Co.; Reuthe, G.; Koster and Sons, M.; Hillier and Sons. Silver-gilt flora medal: To Waterer, Anthony (Executors of the late); Waterer, Sons and Crisp, Limited, J. Donard Nursery Co.; Notcutt, C. R.; Yokohama Nursery Co., Limited; Charlton and Sons, A.; Fromow and Sons, W.; Russell, Limited, L. R.; Jackman and Son, G. Silver-gilt Banksian Medals: To Cheal and Sons, J.; Cutbush and Son, Wm.; Stuart Low and Co.; Gill and Son, R. Silver flora medals: To Endtz, N. J., and Co.; Lewis, T.; Slocock, W. C.; Turner, C.; Watson and Sons, Limited, W.; Green, Limited, R. Silver Banksian medal: To Harrods, Limited. Bronze flora medal: To Whitelegg, G. G.

Herbaceous.—Gold medals: To Blackmore and Langdon; Bunyard and Co., G.; Carter, J., and Co.; Russell, Limited, L. R.; Sutton and Sons; Jones, H. J. Silver cups: Perry, Amos; Webb and Sons (Stourbridge); Brandt, Esq., H. B. (gardener, H. Cook). Silver-gilt flora medals: To Wood, F. G.; Cutbush and Son; Waterer, Sons and Crisp, J. Silver-gilt Banksian medals: To Ellison, H. N.; Ladhams, Limited, B.; Peed and Son, J.; Prichard and Sons, M.; Scaplehorn, E.; Storrie and Storrie; Watkins and Simpson; Artindale and Son, Wm.; Bees, Limited; Blackmore and Langdon; Carter Page and Co., Limited; Chalk Hill Nurseries; Dawkins, A.; de Goede Bros.; Orpington Nurseries Co.; Toogood and Sons, Limited. Silver flora medal: To Clarke, H.; Hewitt and Co., Limited; Jarman and Co.; Maytham Gardens; Miller, G. A.; Yandell, William; Smail and Co.; Wells, Junr., W. Silver Banksian medals: To Carlile, T.; Gibson and Co., G.; Godfrey and Son; Maytham Gardens; Reamsbottom and Co.; Rich and Co. Bronze flora medal: To Case, R. J.; Cheal and Sons, J.



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SIMPLE GARDENING

ROSES UNDER GLASS AND IN POTS.

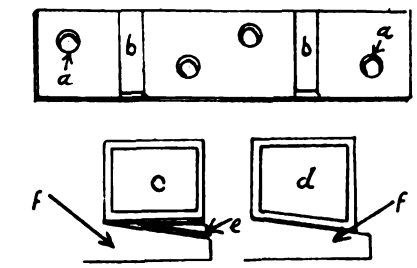
ROSES are grown very extensively under glass, both planted out and in pots, by nurserymen and growers for cut blooms and as small specimens in pots for market. Amateur cultivators also make efforts to grow the plants in this way—some very successfully, others with but partial success. Those who are just beginning to grow roses thus, and so lengthen the flowering period, may make mistakes. Usually, the plants are well cared for while they are making the new wood—tender shoots containing the flower buds—and during the actual flowering stage; but afterwards are often neglected. Of course, those plants growing in borders are permanent and must remain under glass throughout the summer months, but the pot-grown ones should be placed outside directly the flowers have faded. If retained under glass there will be a second crop of flowers; but the cultivator is not justified in keeping them in the house for this, except in seasons when blooms are needed for some special purpose. Abundance of air should be admitted to the permanent rose plants; any dying shoots and those very young and mildewed should be cut out, the branches well shaken to get rid of old leaves, then syringe thoroughly with "Abol" and, afterwards, with clean water. Keep down aphides—fumigate for this purpose—and so reap a good early autumn crop of clean flowers. By judicious pruning there will be a few blooms available nearly all through the summer. The pot plants should also be cleaned; then plunge the pots to their rims in ashes, leaves or soil on a cool base. Re-pot the plants early in July.

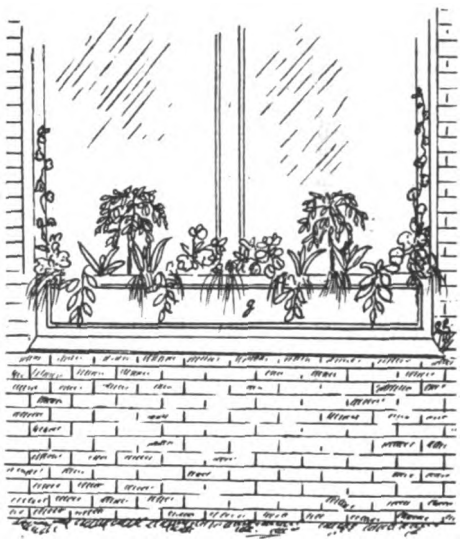
THINNING-OUT SEEDLINGS.

This is work that takes up much time, but it is a very necessary one if the slugs have not been too busy. They generally take the best seedlings or all of them. I thoroughly enjoy thinning-out healthy young plants and endeavour to begin the work at an early stage of their growth and strongly advise readers of THE GARDEN to do so. When the seedlings are small they possess only a few roots and so the majority can be drawn out without interfering with the roots of those left in the rows. Suppose we take, for example, a bed of carrots; if the thinning has been unduly delayed, the plants retained are much loosened in the soil, the carrot fly can easily do its worst, as we often see when the matured roots are lifted and their skins marred. Always look out for the isolated seedlings—those growing, perhaps, 1in. from a cluster of seedlings—and retain the isolated specimen in preference to one in the bunch. The same remark applies to turnips, beet, onions and annuals. Place a finger on the soil near the one to be left in the ground and gently press it to prevent that seedling being disturbed. When the work of thinning is finished, we possess the right number of seedlings in each row, and so we must take care of them and protect them from slugs. A few old ashes washed by rains, should be scattered round our most cherished annuals, as slugs do not crawl freely over sharp ashes. Water through a fine-rosed watering can to settle the soil round the seedlings left. The evening is the best time to do the work of thinning-out.

WINDOW BOXES.

These, well and tastefully filled, make a beautiful house still more beautiful, and even commonplace ones attractive. In certain positions the window boxes are sheltered, but, generally, they are exposed to cold and sometimes strong winds.– It is a mistake to place plants in a window box and the latter in the window





forthwith, except in certain cases and at mid-summer time. The best way is to get the plants established in the boxes during the latter part of May and then place the boxes in the windows about June 10th. Of course, I am referring to outside boxes. The latter, while the plants are being established in them, should be placed in frames or in cosy corners, where temporary shelter may be afforded during the night time and on very cold days. The old combination of scarlet zonal pelargoniums, white marguerite, daisies and blue lobelia is very satisfactory in many cases. But annuals may be used to great effect, and ferns and fuchsias, also begonias in boxes, placed in windows receiving very little sunshine. For hot positions, petunias, antirrhinums and nasturtiums, with Gazania splendens, are most satisfactory. Some holes, *a*, *a*, should be made in the bottom of each box, and cross pieces, *b*, *b*, attached to prevent warping. The window stones have a sloping surface, and if boxes are made square in shape, *c*, they should have wedges, *e*, under them. If the boxes are made to fit the stones, as shown at *d*, wedges are not required. Sections of stones shown at *f*, *f*, and the box in position at *g*.

TREATMENT OF SEEDLINGS OF PERENNIALS.

The treatment during their young stages of growth has much to do with the later successful flowering of the full-grown plants. With a few exceptions, hardy border perennials, to which I am now referring, grow freely enough, and so they are allowed to exist instead of being cared-for as valuable plants, which they really are. There is a vast difference between herbaceous borders properly attended to and those that are neglected. The amateur should select some nice open border in the garden and devote a few square yards to the seedlings and quite young stock. When the time comes to re-arrange the herbaceous border or to plant the new one, he will be glad that he did look after the youngsters. Take, for instance, the seedlings of the Michaelmas daisies; they are very interesting, and one never can tell beforehand how many gems one will cull from the collection. If the soil is poor and shallow, dig in some fresh loam, leaf-soil and rotted manure. Allow the soil to settle for a week or ten days before the young subjects are planted in neat rows and duly labelled. It is better to plant when the soil is dry than when it is wet and sticky; but a good watering should be given directly the work of planting is finished. Make the soil firm around the seedlings with the fingers while engaged in planting. Some kinds require shading a little, and, as the quarter is an open one, the necessary shading can be afforded by sticking in a few evergreen branches. Slugs do a lot of damage, especially to delphiniums, Lobelia cardinalis, lychnis, pyrethrums and dianthus. Fine, washed cinders are effective, also lime and soot judiciously used.

ANNUALS FOR LATE FLOWERING.

Half-hardy and hardy annuals are eagerly raised early in the season with a view to having an early display of flowers. If the slugs and other untoward circumstances permit, the display is usually forthcoming; but in many instances it is short-lived, and then seared plants or bare patches result. The usual early plants are now in need of thinning-out, so readers should sow more seeds now of the following, chiefly stocks, night-scented stock, clarkia elegans, godetias, Shirley and double-flowered poppies, lupins, mallows, mignonette, candytuft, marigold (pot) and dimorphotheca. A good method of sowing the seeds is as follows: if the seeds are to be sown in beds of mixed flowers, make circular shallow drills with a pointed stick, sow the seeds, cover and label. GEORGE GARNER.

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GARDENERS: II—THE SPECIALIST

SPECIALIST gardeners appear in every course of life; some are born specialists, some are made specialists and some have specialisation thrust upon them. Many people laugh at the born specialist and strongly object to being forced to take an interest in seedlings or unflowered specimens of a plant they do not know; but the people who specialise in daffodils or rhododendrons are only the obvious specialists; there are hundreds of others working in the background to whom we owe most of the plants to be found in our gardens.

There are specialists who rarely enter a garden and yet have a great influence on modern gardens; there are the plant biologists and the plant pathologists and other members of the botanical fraternity. There are specialists who do nothing else but raise new sweet peas or new roses or some other garden flower; these sit in a seed farm or in a nursery and are only known by name to a chosen few. There are specialists who can work wonders with a cutting or a bud or a graft and who think nothing of making thousands of grafts in a month. Trade secrets, you may say about all of these. No, emphatically no. Tricks which can be learnt by anybody provided that he is prepared to go through the mill and spend years in learning how to do one job in two minutes, a job which would take an ordinary mortal an hour. These are the drones in the horticultural hive. They live and die unknown, but no one can deny that every garden owes a great debt to their labour. These are they who have specialisation thrust upon them. They must be specialists in order to make a living.

Made specialists are different. Either they garden or they work as ordinary gardeners. There is no necessity for them to specialise and yet long practice or nimble fingers or some little, and possibly easily acquired, knack has made them perfect in one particular thing. Climate or soil conditions may have a great deal to do with their special subject. A perfect soil for roses will usually end in making the gardener a specialist in roses. It makes him go beyond the actual needs of his job. He will read up the subject; he may try his own hand at making new varieties; at any rate, it will carry him beyond the knowledge possessed by the ordinary gardener.

The born specialist is unexplainable. A virus infects him; he has a craze for growing a certain genus or for cultivating a certain type of garden. So severe is this disease that one might say he is not a gardener at all. It is the collector's craze which may attack anyone who has a hobby for collecting anything, whether it be plants or stamps or policeman's batons. Often it is incurable, sometimes the attack slackens in its intensity, usually from a surfeit of good things or from lack of space. I may as well be frank and say that I suffered from a severe bout of rhododendronitis, but, although I like them as well as ever, the intensity of my passion waned when I found that several thousand acres would be necessary to grow every rhododendron in the way I should like to see them—in mass formation of anything from twelve to a hundred plants of each of the seven hundred species, apart from hybrids. I have given up collecting rhododendrons. I now pick and choose those which I think I like or which I consider will grow well in my garden. Consequently, I have room for other plants and my outlook has widened considerably.

There must be a great deal of the gambler in the born specialist, for he is never so happy as with a new find. However doubtful the description of a species or however small the chances of a masterpiece in a batch of hybrids, he will tend them as carefully as his greatest treasures, though it may be years before they flower. Born specialists are nothing if not courageous.

Lest I be considered a renegade I will admit that I would specialise again to-morrow, if I could discover some good-looking genus whose members were limited to twelve or so in number with an added guarantee that not more than two new hybrids and two new species were to be introduced every year. It is the unknown that terrifies me and although I confess to being a collector, it is very much a case of once bitten, twice shy.

And yet our gardens have a great deal for which to thank the born collector. Who else would there be to test and report on new species and new varieties, particularly of trees and shrubs? The botanic gardens can never grow them all, the ordinary gardener has not the requisite keenness, and there is too much risk attached for the nurseryman to attempt it, even if he had the staff and the space. Somebody has to do it, else horticulture would languish, so even the born specialist has his uses.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

JUNE WORK AMONG THE CHRYSANTHEMUMS, by A. J. Macself.

FRAGRANCE IN THE SUMMER GARDEN, by H. W. Canning-Wright.

ENEMIES OF THE STRAWBERRY, by M. L. Brooke.

GARDENS OF HEALING—II, by Victoria Slade.

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HYDRANGEAS

THE great variety of colour to be found in the new introductions of Hydrangea hortensis have made this class of greenhouse plant extremely popular in gardens, and rightly so, considering the comparative ease with which they may be cultivated. The flowers last a long time, and hence their value for the decoration of the conservatory and greenhouse.

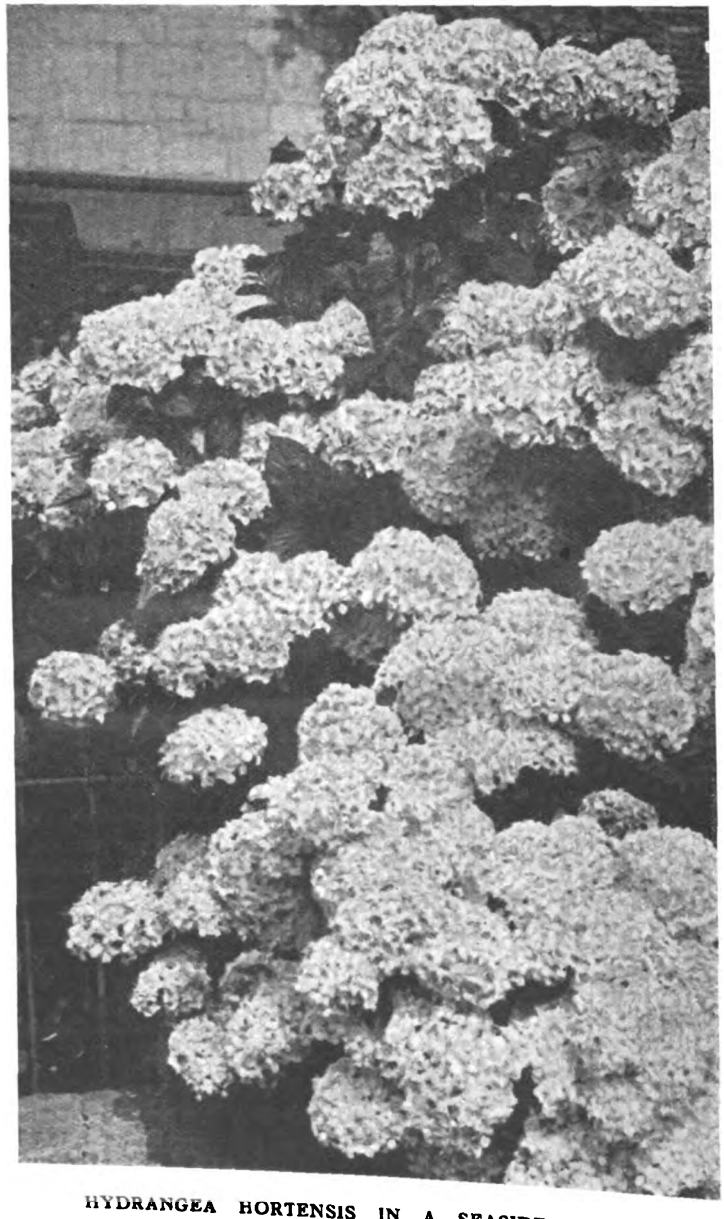
For house decoration they are also admirable, the flowers lasting considerably longer than many other flowering plants. Several nurserymen have of recent years made a speciality of hydrangeas, notably Mr. H. J. Jones of Lewisham. Magnificent groups have been exhibited from time to time at the Chelsea and other shows, which have impressed visitors, and especially gardeners, with the great advance in size of the flowers, the beauty of their colour, and variety. Some of them have received awards of merit from the R.H.S., testifying to their fine qualities.

Hydrangeas may be cultivated in various ways for different requirements. They may be grown with single stem, carrying a large head of bloom, in 48-size pots, or larger plants with several growths in 32 and 24-sized pots, up to specimen plants in 10in. and 12in. pots, according to requirements. Large specimens in tubs make a fine display during the summer months, when standing in conjunction with other plants on terrace walks, where they show to excellent advantage. For this purpose choose those of a strong, sturdy habit of growth.

Propagation may be effected by two methods—either by taking cuttings of the young side growths off the older plants in the spring, or by half-ripened growths during August and September. Personally, I prefer to propagate at both seasons, thereby ensuring a good stock of young plants. Where stock is plentiful, several cuttings may be rooted in each pot, and later again potted into a larger size, without division, thereby ensuring a larger flowering plant in the minimum space of time.

For autumn propagation, good strong shoots should be selected, preferably those which failed to flower during the summer months; in these shoots will be found a good plump terminal bud, which will, if all goes well, give a large head of flower in the following spring months.

The cuttings should be inserted singly in small pots—using fine light soil with a liberal amount of silver sand—well watered in, and placed in a warm close house till rooted, shading from strong sunshine. When the cuttings are rooted they must be at once inured to cooler treatment until they are eventually rested in a temperature of from 35° to 40° Fahr. during the winter months, affording free ventilation whenever the external conditions permit. Water must be used sparingly during the resting period, but excessive dryness at the root must be avoided in these young plants.



HYDRANGEA HORTENSIS IN A SEASIDE GARDEN.

An early peach house or vinery is a good place to start them gently into growth, potting them on into 48's as soon as growth is apparent; in this size they will flower, giving one large head or corymb of bloom, and will prove very popular for house decoration.

Give plenty of water and feed the plants during active growth, until the flowers begin to expand, when feeding must be gradually discontinued. Discriminate in the use of the shading, as the flowers will not stand much sunshine early in the season when grown under glass,

Plants two or more years old may be kept well on the dry side during the resting period, in cold houses or frames from which severe frost is excluded, and brought in in batches as required, to keep up a succession. In this manner hydrangeas may be had in flower from spring till September. Certain varieties respond to slight forcing more readily than others, notably that fine white variety, Mme. Mouillere. I have found this variety to differ somewhat from others of H. hortensis, in that it may be had in flower both earlier and later in the season by propagating at different times. Given a sufficient number of plants, it is possible to have this variety in flower eight or nine months of the year. From cuttings struck in August they have flowered in 60-size pots during November and on into December, giving nice useful heads of bloom. Again, from plants started in January they may be had in flower in April.

I have in my mind's eye a pair of specimen plants that were grown on from plants in 48's purchased in the summer of 1922; in the following May, 1923, they flowered splendidly in 24-size pots, having a dozen or more good heads each. Resting them, and again potting them on into 11in. pots, starting them in January in gentle heat, these plants in the following May carried, each, thirty to forty large heads of flower, pure white, averaging 3ft. high by 4ft. through, and being perfectly symmetrical in shape. I merely mention this as an illustration of what may be done in a year or so with hydrangeas.

Two very distinct and beautiful forms of blue varieties of hydrangea are Mariesii and involucrata. Both of these have fertile flowers in the centre of the corymb, with a row of sterile flowers round the outer edge, which considerably enhances their beauty.

Another distinct variety, seldom seen, is H. Sargentii, with flowers similar to the above, except that the very large corymbs are creamy white in colour. This species differs in many ways from H. hortensis. The growth is hard-wooded, erect in habit, with large leaves (not unlike those of a stove plant, Cyanophyllum magnificum), with a velvety sheen, and veined; the leaves will not bear exposure to the sun without being considerably scorched and disfigured, but grown

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shaded intermediate house it forms both a unique and very decorative plant, in my opinion the foliage being far more beautiful than the flower. Anyone who has hitherto failed with this variety will find it to prove satisfactory grown in the manner described. Many varieties of hydrangeas are hardy, given suitable soil and positions, seeing that they come from various parts of the world—America, China, Japan. Of these, mention may be made of some of the most interesting: arborea grandiflora, quercifolia (the oak-leaf form), vestita, involucrata, paniculata grandiflora, and others. The last-named is largely used for forcing in pots, and requires to be pruned back annually, flowering as it does on the current season's growth, in large white panicles. It is also one of the best for outdoor cultivation: in this case the pruning should be done in March.

There is a climbing variety named scandens, suitable for walls and clothing the trunks of trees. It is self-supporting, after the manner of ivy, and bears white flowers. There is another variety of hydrangea I had almost forgotten to mention —cyanoclada, with jet black stems, which always proves interesting, either in or out of flower, on account of its uncommon colour, in a collection.

Hydrangeas will be found to thrive in the following compost: Three parts good fibrous loam, one part peat, one part old mushroom-bed manure, a little soot and some crushed charcoal, adding a 48-size pot of bone-meal to the bushel of soil: mix well several days previous to use, and pot moderately firmly.

Hydrangeas must have a season of rest. After flowering they may be placed on a bed of coal ashes, in full sunshine during the autumn months. Any pruning may then be done, at the same time potting on any plants requiring it. As the season advances, watering may gradually be decreased until the foliage falls, when they may be wintered in the cold houses or frames. The following list of good varieties of H. hortensis can be recommended: Mme. Mouillere, Lilie Mouillere, Germanie Mouillere, Parzival, La Marne, Brilliant, Triumph, Mariesii, Helge, Lorley, Krimhild, Mme. H. Hamar; these constitute a good dozen for pot culture.

AS DECORATIVE SHRUBS HYDRANGEAS ARE EXCELLENT BOTH FOR FOLIAGE AND FLORAL EFFECTS.

With reference to the colour of the blue in hydrangeas, what is needed are decided colours, such as an Oxford and a Cambridge blue. A good clear pink is far better than a muddled between colour, which is neither beautiful nor effective.

I. HAWKES.

GARDENS OF HEALING.—I

GARDENS of healing, that is, those given over to the cultivation of medicinal herbs, are rarities in Britain. On the Continent they are frequently found both in private and commercial grounds. Such gardens are both interesting and remunerative, and all owners of a bit of spare ground would derive much pleasure and profit if they turned it into a medicinal garden of plants with healing properties.

The work which requires the greatest care in this connection is that of drying the herbs. They should be handled as little and as lightly as possible and never crushed. Trays, such as apples are stored in, should be used. All plants are best dried in the sunshine, but if that is non-existent a room heated by pipes, such as a warm greenhouse, or close to a wall where the heat of the kitchen range is felt, or even a very slow, moderately heated oven will dry the plants efficiently. With very few exceptions all heat other than that of the sun should be slow.

The size of the health garden varies, of course, according to the amount of ground at the owner's disposal. It should be divided off by little paths, around and between the plots, in the manner of French kitchen gardens, in order that every part of the bed can be within reach of the gardener's hands, and thus the ground is never trodden on. Each plot should have a large, distinctly marked label at its top right-hand corner, and should be kept constantly hoed and entirely free from weeds.

ROMAN CAMOMILE (Anthemis nobilis).—Roman or double camomile is one of the most important of medicinal herbs. It is also one that requires the least care in cultivation. It will not grow in heavy land or in wet situations, but likes a hot, dry soil rich in *silica et voilà tout*. Camomile loses none of its properties by desiccation.

The stinking camomile (A. colutea), which is almost as ubiquitous as the common groundsel, possesses all the qualities of its rich aristocratic relation, but in a markedly less degree.

The healing virtues of A. nobilis are recognised and made use of all over the world, but in our country the plant is not so extensively grown as it ought to be, although it is in constant demand. The flowers cost 7s. 6d. per pound, and are obtained from the Continent, where every garden, large or small, private or commercial, has its camomile border or patch. In both North and South America large tracts of land are given over to the cultivation of this herb.

In France *tisane de camomile*, or camomile tea, is *de rigueur* after an indigestible meal, and it is used medicinally as a digestive, a tonic and a safe medicine for all intestinal and stomachic disorders, and also as a febrifuge.

This infusion is antiseptic, and its application quickly cleanses and heals all wounds, ulcers and running sores. For this purpose quarter to half an ounce of the dried flowers are steeped in a pint of boiling water and allowed to "draw" like tea. Camomile infusion should *never* be taken internally after it has been infused for over half an hour.

For children suffering from rickets or eczema hot baths in which half a dozen camomile heads have been thrown are both soothing and health giving.

Finally, camomile oil is invaluable for all rheumatic and internal pains if applied *externally*. It is obtained by allowing 3 oz. of the tops of the plant to simmer for two hours in a pint of olive oil.

ANGELICA ARCHANGELICA.—Nature we know grows plants for the cure of diseases

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to which animals are subject, and eminent naturalists have recorded many instances of birds and beasts doctoring themselves and their offspring by eating various plants. A notable example is that of the partridge of North America, which gives her little ones the partridge berry to eat when they are out of sorts.

Dogs and cats, as everyone knows, have recourse to the beneficent virtues of couch grass when they feel unwell. It seems only logical to conclude that cures for man's bodily ills are to be found also in the vegetable world.

Angelica Archangelica, known also as the Root of the Holy Ghost, received these celestial names on account of its real or imaginary virtues. In very early times all its parts were considered efficacious against witchcraft and enchantments, and in the Middle Ages it was the sovereign remedy against poison, the plague and all infectious maladies. Nowadays it is used daily on the Continent for indigestion, general debility and chronic bronchitis. For external use the fresh leaves of the plant are crushed and applied as poultices in lung and chest diseases.

The roots of angelica should be dried rapidly and placed in air-tight receptacles. They will then retain their medicinal virtues for many years.

A delicious liqueur which is also a digestive, preserving all the virtues of the plant, is made in this way: 1 oz. of the freshly gathered stem of angelica is chopped up and steeped in 2 pints of good brandy during five days, 1 oz. of skinned bitter almonds reduced to a pulp being added. The liquid is then strained through fine muslin and a pint of liquid sugar added to it.

The natural habit of angelica being the banks of streams and ditches and shady woods, it is evident that the plant must be given a shady situation in the health garden. Seeds of angelica are sown in the spring, and as the plants are very large, they should be thinned out to at least a yard apart.

PIMPINELLA ANISUM (Aniseed).—The virtues of this umbellifera are analagous to those of the angelica and are found chiefly in the fruits of the plant, from which a very aromatic oil is extracted. A liqueur known in France as anisette is made by steeping pimpinella fruits in brandy for a month or more. This is constantly used for chronic indigestion and flatulence. A very pleasant tooth-powder which strengthens the gums and whitens the teeth is made by mixing powdered pimpinella seeds with equal parts of charcoal and cinchona bark.

Aniseed likes a rich, damp soil and a south aspect. Seeds should be planted in March, April or May and the plants thinned out to 18ins. apart.

VICTORIA SLADE.

SUMMER BEDDING

AT THIS SEASON OF THE YEAR THE SUGGESTIONS PUT FORWARD IN THIS ARTICLE SHOULD PROVE OF ASSISTANCE TO THOSE WHO MAY WISH TO GET AWAY FROM THE ORDINARY STEREOTYPED BEDDING OUT DESIGNS AND SUBJECTS.

DAME FASHION plays her part in gardening, and perhaps in no section has she proved herself such a fickle jade as in the furnishing of that part of the garden where beds are annually filled with spring and summer bedding plants. This applies more strongly to summer bedding than to spring bedding, owing, no doubt, to the greater variety of plants suitable for the former scheme. One has to go back many years when "carpet bedding" held sway, and owing, perhaps, to the novelty of the design rather than to its beauty, it arrested attention and aroused a feeling of curiosity. This in time changed to the massing and ribbon border fashion. Such plants as pelargoniums in variety, calceolarias, petunias, verbenas, lobelia and pyrethrum were used lavishly, and in many gardens the glasshouses were severely taxed to provide sufficient plants to meet the demand. This somewhat formal style changed after a considerable run of popularity to what may be termed the "mixed, or dot, system." This was done, and still is to a great extent, by using various dwarf-flowering or foliage plants for massing, with the addition of taller, graceful foliage and flowering plants, not too thickly, to break the stiffness. This system entailed much work and expense and has, of necessity, practically gone out of fashion.

ANTIRRHINUMS IN A PARTERRE.

In many large private gardens the section devoted to summer bedding has of late years been modified, or in any case plants are now used which are less expensive to prepare than was previously the case. In others, where the position of the beds permits it, roses and other hardy plants have been substituted. Though hardy perennials cannot, perhaps, be substituted which will give the same freedom and prolonged display of bloom as many of the typical bedding plants, many combinations of plants can easily be thought out which would give fairly satisfactory results. For instance, beds carpeted with either violas, nepetas, pinks or arabis could have such plants as astilbes, liliums, gladioli, galtonias, montbretias or campanulas planted among them. Beds also of pentstemons (pale pink) and Eryngium Oliverianum, Anchusa italica Dropmore variety and Œnothera biennis — Anchusa, Delphinium Bella Donna and Salvia patens — Potentilla Gibson's Scarlet, Sidalcea Listeri and montbretias or Lilium tigrinum—Violas, aquilegias and Veronica spicata—Phlox suffruticosa Victoria and Pentstemon Chester Scarlet or Middleton Gem would all bloom for the greater part of the summer and, of course, be economical to use.

That there is no falling off in public taste for typical summer bedding is, however, fairly certain. Evidence of this is that the sale of bedding plants has probably never been greater than it is to-day.

It is, fortunately, a trait of an English home, of whatever size, that there must be some flowers surrounding it during the summer. Plants to use and the scheme of planting should be governed somewhat by the design of the flower garden and its

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proximity to the residence. The material also with which the residence is built should have more consideration than is sometimes given it. Who has not seen the dazzling scarlet Pelargonium Paul Crampel planted in front of one of the crude brick houses which are now springing up on all sides and shuddered at the sight? How much more pleasing would the effect be with flowers of light blue and lavender, such as Viola Maggie Mott, ageratum, Aster sinensis, heliotrope and Plumbago capensis. An effective plant, too, for such a position is that charming little Dahlia Little Othello, with its dark metallic foliage and crimson blossoms. This plant, which rarely exceeds 18ins. in height, is not as well known as it deserves to be. Lemur is similar. I prefer either of these varieties to the popular Coltness Gem, and I know many who have seen them agree with me.

The older red brick house which has been toned down with age should have the association of flowers of dull orange, apricot and salmon or coppery crimson. Suitable plants for providing these colours are readily found in the charming nemesias, begonias, antirrhinums and calliopsis. What a beautiful little annual the nemesia is with its wide range of colouring! I doubt if it has an equal as a dwarf annual, useful alike for beds and pots.

A white house, somewhat rare perhaps, may be surrounded by flowers of rather bright hues, such as vermilion, blue, bronze and amber. These colours are found in many plants. A few are antirrhinums, begonias, Delphinium Blue Butterfly, Salvia patens and cannas. The latter, especially the varieties with bronze foliage, are striking.

A grey stone building provides a setting for almost any colour scheme.

Even when the flower-beds are not sufficiently near the residence to affect the colour scheme, they are usually under continuous observation, as distinct from a seclusive garden. It is therefore necessary to use plants as far as possible which will provide a long season of blooming. Where the beds will be continuously viewed close to the eye, and particularly if not on a large scale, a soft harmonising effect will be better than that obtained by boldly contrasting colours. For real beauty delicate colours are undoubtedly best, such as shades of pink, mixtures of pink and white, light blue, straw-coloured yellow, apricots and salmons and soft tones of crimsons. Strong colours may be rich and showy in contrast, but are less beautiful and hardly in such good taste. Where, however, the scheme is a large one with long stretches of beds, strong contrasting colours toned down with graceful foliage plants would be best. Where a bed or group of beds is to be viewed from a distance, an effect should be aimed at which will appear full of expression. Some of the bright begonias, pelargoniums, salvias, antirrhinums and dahlias suggest themselves.

In arranging foliage plants with the flowers the colour of the foliage should be considered in proportion to the intensity or delicacy of the flowers with which they are mixed. The brighter the flowers the stronger should be the green of the foliage, and the more delicate a corresponding softness. The same proportion should be observed with regard to the habit of the foliage plant. A heavy, bold foliage plant, such as a ricinus, would be sadly out of place over a carpet of nemesias, whereas a few might be permissible over large-leaved begonias and ideal over a thin planting of a dwarf canna. Useful foliage plants are abutilons, eulalias, Grevillea robusta, Acacia lophantha, Gnaphalium microphyllum. When used, the object of such plants is to relieve, not to hide, the carpeting plants.

Many beautiful flowering plants may also be used with great effect as relief plants. Thoughts immediately turn to that delightful old plant Plumbago capensis, which greatly enhances a bed of blue verbenas or violas such as Maggie Mott. Lantanas are favourites of many, and can be grown in various shapes, such as pyramids or standards, and look well over a carpet of Verbena venosa or white antirrhinums. Plants can also be pegged down to form a carpet for the taller plants. Heliotrope is always popular and lends itself for use much in the same way as the lantana, and has the added charm of scent. Another plant of a more striking colour is Streptosolen Jamesonii. This makes an effective bed with a carpet of white or yellow violas. It may also be happily associated with warm apricot antirrhinums, orange begonias or Coreopsis grandiflora. A beautiful effect is obtained by a mixture of Delphinium Blue Butterfly and white antirrhinums.

TUBEROUS BEGONIAS AND FUCHSIAS ARE ADMIRABLE FOR BEDDING PURPOSES.

Few subjects are more attractive than Fuchsia Coralle. There are several similar varieties, all hybrids of Fuchsia triphylla. They are excellent for bedding, and if given a fairly rich soil and sufficient moisture make splendid plants which bloom profusely for months. A carpeting of a good white viola would intensify the pleasing coral colour of the fuchsia. Lobelia cardinalis rising through a carpet of the grey-leaved Cineraria maritima is striking. The use of the dainty grey-foliaged plant Leucophyton Brownii as a carpet and a few staked up as relief plants among pale pink begonias is an oft-repeated but always pleasing combination. Calceolaria amplexicaule is an old plant, but its pale lemon flowers are always permissible. It can be used in various ways, either as a tall plant among dwarf subjects, or it will be equally useful as a foil for taller flowering plants or foliage.

Frequent mention has been made of antirrhinums. The selection is endless in colour and in various types from dwarf to tall. They are probably used in greater numbers than any other class of plant.

The dwarf scarlet Dahlia Coltness Gem has largely superseded Pelargonium Paul Crampel as a bedding plant, and rumour has it that there are not enough plants to meet the demand this year. There are, however, many other good varieties. Mention has already been made of Little Othello and Lemur. Those partial to a small cactus dahlia should try René Cayeux. The plants rarely exceed more than 2ft. in height, the habit is graceful and the flowers a dazzling crimson scarlet. Marianne, a dwarf plant with warm apricot-coloured blooms, will be sure to please if planted in soil which is not rich. It is now classed as a camellia-flowered dahlia. Some of the specialists list quite a lot of varieties of the Mignon type, all of which are dwarf and ideal for bedding. For larger beds and taller effects up to 3ft., the popular miniature-flowered peony type cannot be too strongly recommended.

Ivy-leaved and Cape pelargoniums and many annuals not mentioned are excellent when used in the proper place.

These are only a few ideas and could be extended indefinitely. Summer bedding may not be regarded in such an important light as it was some years ago. Nevertheless, in carrying out a scheme, whether large or small, the aim should be to get an effect which will be bright but not gaudy, appealing yet restful, and the arrangement such that it represents a work of art.

ARTHUR J. COBB.

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SWEET-SCENTED ALPINES

FRAGRANCE IS ONE OF THE MOST VALUED ASSETS IN THE ROCK GARDEN, AND A FEW OF THE ALPINE SUBJECTS MENTIONED IN THIS ARTICLE SHOULD BE INCLUDED FOR THEIR PERFUME AS WELL AS FOR THEIR BEAUTY OF FORM.

THE voice of the multitude is unanimous that a sweet perfume should weigh very largely in the estimate of all flowers; and the absence of scent, characteristic of most alpines, and nearly all high alpines, does a disservice to the rock garden. The fewer the rock plants that are scented, therefore, the more should they be singled out for mention and for attention to their cultivation. Yet, now that I have racked memory and books for alpines notable for their perfumes, their number is not really exiguous. On the hills Thymus Serpyllum charms by its yard-wide mats of large-headed floriferousness as well as by its scent, and the rock garden would gain by the inclusion of its numerous varieties—lemon, or caraway, or camphor, or just "thyme." On the hills one takes in wide-open lungfuls of honeyed breaths of Trifolium alpinum, and why not in the garden, be the clover never so humble? But of alpines more august than these my notebook has now many pages of names; and in the first instance I would write of those which fill the mountain-sides with their ubiquitous fragrance.

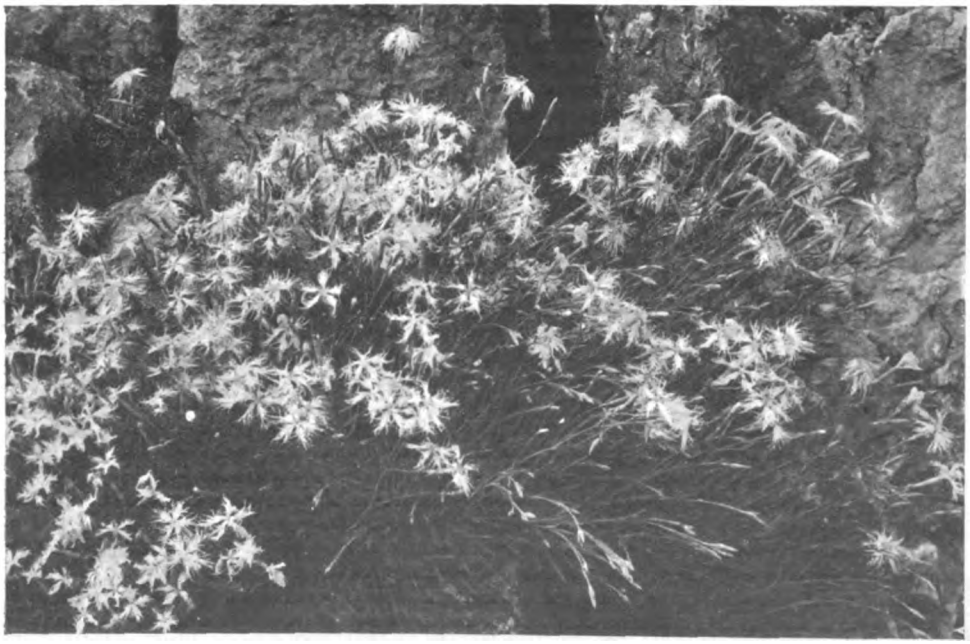
Two memories take first rank: one, the high upland pasture that lies immediately behind the Pordoi Hotel in the Dolomites at about 8,oooft.; the other, the stony sunburnt slope not much above sea level that rises from Torbole towards the sky-high peak of Monte Altissimo di Monte Baldo. Wherever you roam, the exquisite fragrance of Daphne striata haunts you on the one, and of Dianthus monspessulanus on the other; while on both, the nose in advance of the eye tells you that the daphne or pink are around—blessed the alpine that proclaims its vicinity by its perfume!

On the Pordoi and in the Val del Fain on the Bernina the daphne makes charming ground-hugging hummocks, and its colour when young is a good rose-pink. Strictures have been passed on striata, and panegyrics lavished on Cneorum; but sight and scent on the Pordoi make you sensible that you would not love the one so much did you not love the other—just as much. The rare rupestris, the less rare alpina and Blagayana, and the common but dull-flowered and lanky Mezereum are all of high value for their scent alone, while rupestris ranks among the most beautiful of all alpines.

Dianthus monspessulanus, on stony slopes above Torbole or rioting in fields along the Val di Ledro as poppies do at home—turning into pinks and poppies what was meant for corn—has close relationship with the well known D. superbus. But whereas superbus is a tall straggly single plant of woodlands (as in the woods of sils in the Engadine, most beautiful, second only to Misurina, of all alpine woods), monspessulanus forms tight tufts a foot or two square, a foot in height, in full sun on scree or field, with lavender blossoms, darkly mottled (or all white) equalling in number the garden pink. The higher form of monspessulanus, called D. m. Sternbergii, not more than 6ins. high, is found on the higher slopes of Monte Baldo and also just below the precipices at the back of the Faloria Hotel at Cortina, and again on the stony lawn in front of the hotel at Tre Croce, half-way between Cortina and Misurina. There is also a high alpine form of superbus, called speciosus. Of the exact relation between these forms I am unaware, and it is sufficient to say that DD. speciosus, superbus, Sternbergii, monspessulanus, squarrosus and, perhaps, plumarius, are subspecies of D. fimbriatus, the fringed pink. All are invaluable for their sweet pervading perfume, and whereas superbus fails of being truly perennial, the higher, dwarfer and neater species have no such adverse reports.

The valerians must be the last to be included at present. The tiny valerians—celtica, the ancient Nard, smelling of patchouli;

THE LARGE SPREADING MATS OF THYMUS SERPYLLUM CLOTHED WITH MYRIADS OF TINY SCENTED FLOWERS.



DIANTHUS SUPERBUS, QUAINTLY FRINGED AND DELICIOUSLY FRAGRANT, IS ONE OF THE MOST CHARMING OF SWEET-SCENTED ALPINES.

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elongata; globulariæfolia; salinuca and tripteris, are valuable for their intense sweetness alone, their tight little spikes of dingy flowers reckoning not at all. The jewel is the almost stemless V. supina that unites inimitable fragrance with wide mats of distinct and clear pink flowers. Alas! that supina haunts the wild cauldrons that cleave the southern elevation of the Schlern, up from the Ischamin-thal near Bozen, where you mount the precipices by ladders and Baedeker warns you of "inconvenience to those subject to giddiness." If I had to ascend a precipice by a ladder, it is not Valeriana supina that I would be looking for; and as giddiness belikes me not, I regretfully conclude that supina is in no danger of extirpation by me and must continue to waste its sweetness on the mountain air. E. E. T.

TWO ORNAMENTAL PLANTS

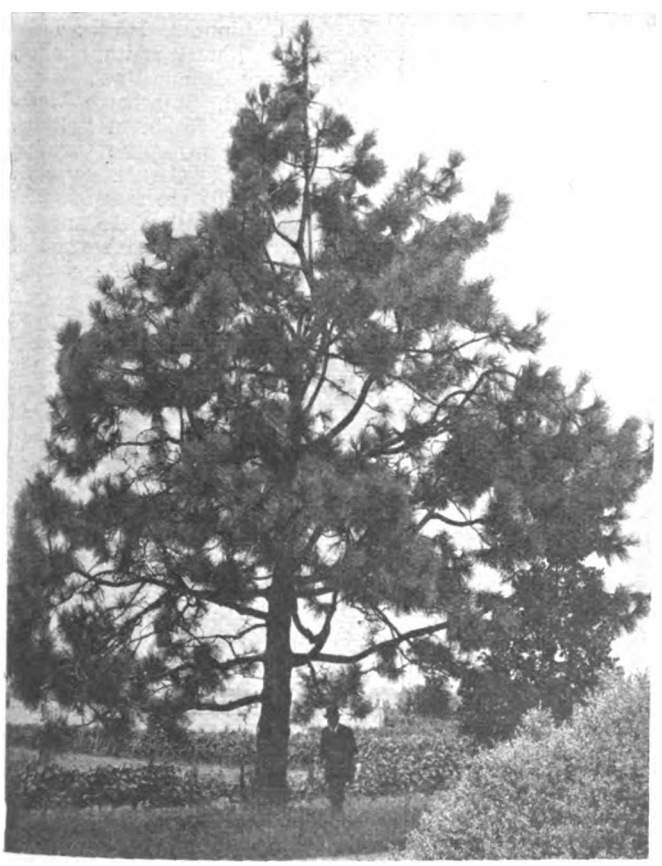
PINUS JEFFREYI.

THE Californian black pine, in its native home also called truckee or sapwood pine, according to Britton has rather often been planted on the Continent. One of the best specimens I have met with stands on the small island Scharfenberg at Tegel, near Berlin, in the once famous collection of Dr. Bolle. Quite a number of good plants can be seen in private gardens in western Germany, for instance, along the Rhine. It has been tried rather successfully as a forest tree in the same way as P. ponderosa, the bull pine, of which P. Jeffreyi is often regarded as only a variety. According to Jepson, the well known author of the Californian flora, P. Jeffreyi merges insensibly into ponderosa, but there may be intermediate forms of hybrid origin. For horticultural purposes it may well be regarded as a good species, differing from ponderosa in its distinctly glaucous young shoots, its hardly resinous buds, its somewhat stiffer pale bluish-green leaves, which measure only from 4ins. to 8½ins. in length, and in its larger, usually purplish cones which are up to 12ins. long. If one breaks a young shoot it smells strongly of oranges, while the young growth of ponderosa has a peculiar smell of turpentine. The illustration shows a fine plant of P. Jeffreyi from the late Mr. Allard's famous collection of conifers at La Maulévrie, near Angers, in France. The old gentleman, one of the keenest collectors and finest men I have ever met, is seen standing under the tree. He had brought together an exceedingly rich collection of broad-leaved evergreens, too. The arboretum belongs at present to the Institute Pasteur at Paris.

With its large cones P. Jeffreyi forms one of the most interesting species of the genus pinus. It has proved hardier on the Continent, as one might expect from its habitat. According to Britton it occurs on dry volcanic mountains from southern Oregon through Calfornia to lower Calfornia, often forming pure forests. In the most favourable situations it occasionally reaches a height of 230ft.

RUBUS BIFLORUS VAR. QUINQUEFLORUS.

Among our European representatives of the genus rubus there are, in spite of the enormous number of so-called species, very few distinct types. It is China, the dendrological paradise that sends us the most striking and ornamental types of this genus, too. Take, for instance, such semi-evergreen or evergreen species as R. Henryi (R. bambusarum), R. chroosepalus or R. flagelliflorus. But of a very different aspect are the deciduous R. Giraldianus and the one I wish to speak of at present, R. biflorus, in its Chinese variety, quinqueflorus. The illustration shows at once the striking effect of a vigorous plant. I took the photograph in the garden of Count Herbert Schaffgotsch at Purgstall, Lower Austria, where this keen and enthusiastic amateur has brought together a surprisingly rich collection of rare plants. I shall speak of his fine rock garden later on. Among the woody plants of his collection this Chinese raspberry is of a peculiar interest. The typical R. biflorus is a native of the Himalaya, and has already been introduced in 1818, but never became very well known, at least in the gardens of the Continent. In 1907 Wilson



THE CALIFORNIAN BLACK PINE, P. JEFFREYI.

A FINE CHINESE RASPBERRY, R. BIFLORUS QUINQUEFLORUS

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made us acquainted with the Chinese form that seems to be a more vigorous and much hardier plant. Its strong shoots reach a height of more than 13ft., and are covered with a beautiful white waxy bloom, and armed with straight prickles. As Bean has already stated, during fall and winter a group of this raspberry makes one of the most striking plant pictures in the open air. There are two other Chinese species with similar white stems, R. lasiostylus and R. Giraldianus. The last one is a strong, beautiful plant too, but it has rather insignificant black fruits, while the fruits of R. biflorus are of a wonderful amber colour or almost golden yellow, and of an excellent taste. Bailey is right in speaking of the variety as of a promising fruit-bearing as well as ornamental plant.

CAMILLO SCHNEIDER.

WEEDLESS PATHS AND COURTYARDS

SOME forms of tidiness in the garden savour of fussy artificiality which jars upon the nerves of those who love the apparent freedom of natural effects, but surely none will venture to suggest that weedy paths may be tolerated. Among all the labours of garden control no task is more irksome and extravagant in its absorption of time and effort than the constant weeding of hard gravel drives or the crevices between the slabs of paved garden walks. Weed-killers should, therefore, have a special interest at this season when time can ill be spared for unprofitable labour.

Nervous fear of handling poisons has prejudiced some minds against these labour-saving preparations, but be it remembered many things are commonly used without the slightest compunction, not because they are harmless, but because less emphasis has been laid upon the danger accompanying their use than in the case of weed-killers. Complaint against reiterated warning of the baneful power of weed-killers would be unwise; to be forewarned is better than to err in ignorance, and the one thing essential to safety in the use of poisons is to be clearly informed of the possible results of careless handling. The frequently recommended alternative to poisonous weed-killer is to use common salt, but that is a very poor substitute, for although immediate contact with weeds enables the salt quickly to discolour and maybe actually kill them, as soon as rains wash the salt into the gravel chemical conversion begins, and soon the salt becomes plant food, which encourages a more robust growth of weeds.

Arsenical weed-killer poisons the weeds, and leaves the poison in the surface gravel, and for a long period not only seeds fail to germinate, but stout weeds are prevented from thrusting new growths through the surface.

One of the most persistent weeds that may break through a firmly constructed gravel drive is the "bell-bind," or wild convolvulus. The depth to which the roots penetrate into subsoil of practically any description, not even excepting solid chalk, makes it impossible to kill an established colony at a single operation, but close observation of a particular pathway laid on a chalk hillside conclusively proved that after killing the developed herbage the poisoned surface arrested the progress of subsequent growths, killing them within an inch of the surface for a period of six months after a single dressing with weed-killer. The second season growth of bell-bind was much later in making its appearance, when a prompt application of weed-killer stopped its progress for the rest of that season. Last year—the third season—July was reached before the first few weak growths showed through the surface, and this year May has arrived with no necessity at present to use weed-killer on that path. The value of these results becomes apparent when one attempts to estimate the amount of tedious labour which would have been involved during three whole seasons and part of the fourth in hand pulling the growth of bell-bind, which has its roots deep down in a great seam of chalk. Even unskilled garden labour is costly to-day, and unskilled weeding frequently proves to be a vexatious waste of money, while the amateur who entirely maintains even a small garden in spare time will find plenty to do apart from incessant path weeding.

Powerful brands of weed-killer made by well known chemists are readily available, and small quantities may be purchased in sealed canisters or cartons, in liquid or powder form, from local horticultural sundriesmen. Their prices vary according to their strength, but when considerable quantities are to be used it is more economical to buy the brands which will stand greatest dilution, because it means less carriage charges, and even though the prices quoted may be inclusive of delivery, it is well to remember there is no such thing as "free" delivery, since railway companies do not carry goods without payment. Herein lies an advantage of weed-killers sent out in powder form, and large users will be well advised to bear this in mind, but for small gardens the liquid has the advantage of being more easily prepared for use without delay, no risk being involved by even a brief period of standing to dissolve as is necessary with powder.

Any of the following names on a vessel of weed-killer will be sufficient guarantee of good quality: Abol Limited, Joseph Bentley, Limited, Corry and Co., McDougall and Robertson, Cooper and Nephews, G. H. Richards, Ltd., Tomlinson and Hayward, Limited, Morris, Little and Son, Limited, Mark Smith, Limited, The Briton Ferry Chemical and Manure Company, Limited, Stonehouse Works Company, Limited, Robinson Brothers, Limited, G. Harrison, Acme Chemical Company, Limited, Garden Supplies, Limited. All brands are sent out with plain directions regarding the strength at which to use, and the method of mixing, and these should be accurately followed.

Galvanised water cans are better than painted ones, because the acids usually peel off the paint. A fine rose on the can is better than a coarse one, because too rapid a flow will cause the liquid to run off the hard surface of the path to the lower level of the sides, resulting in uneven distribution and waste of strength.

The main points to observe are to avoid using it when the ground is very wet or when rain threatens, and to take care that the weed-killer does not reach growing edging plants, grass verges, roots of climbers or drains which connect with ponds. Thoroughly wash all utensils *immediately* after use, and store weed-killer under lock and key. For the benefit of those who will not use poisonous weed-killers some non-poisonous brands are obtainable, and although these will only stand about half the dilution the poisonous brands will do, they are every bit as capable of destroying weeds.

L. I. ATRIS.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

All communications should be addressed to the Service Department, THE GARDEN, 20, Tavistock Street, Covent Garden, London, W.C.2.

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SIMPLE GARDENING

AUTUMN CAULIFLOWERS AND WINTER GREENS.

NEITHER cauliflowers nor winter greens generally, withstand severe checks without suffering more or less. I know how difficult it is for amateurs always to devote the necessary time to early and intermediate transplanting which is such a help in the due preparation of the plants prior to their final planting-out. Usually, the seeds are sown in poor soil in an open border; the resultant seedlings are allowed to grow, often to a height of 1ft., before they are violently pulled up, generally in a dry state, when many valuable roots are sacrificed, and replanted in dry, poor soil, too, during the hottest days of summer. There need not be any wonder at the appearance of "club-bing," at delay in the formation of healthy roots and new. Frequently the plants are "clubbed" in their seed-beds before they are permanently put out. Do not sow seeds in the same bed year after year; do not even transplant the resultant plants in the same nursery beds, and do not finally plant them in the same quarters. Be content to grow fewer plants and treat them very well; the results will be much more satisfactory. Now, possibly many readers will possess beds of seedling plants of cauliflowers and winter greens. Some, no doubt, do follow the good plan of intermediate transplanting. I would persuade those who have not done so to try it this year. It is beneficial where ground is vacant, but doubly so where it is absolutely necessary to keep the young plants somewhere till ground is cleared. There is great gain, as the plants possess plenty of roots and good balls of soil, and are not seriously checked when finally transplanted if ordinary care be taken.

SUMMER WATERING AND PLANT FEEDING.

Watering, according to position of garden, its soil and the available water supply, may be a light or a heavy burdensome occupation. The feeding of plants is not, in any case, as a little of it goes a long way if correctly carried out. Suppose we consider the greenhouse and conservatory plants first. It is a fact that many residents in towns and their suburbs are obliged to pot their plants in unsuitable compost—at least, in such a mixture that does not induce free root-action. The consequence is that numerous plants are unsatisfactory, and the inexperienced cultivator at once applies large doses of strong manures. This is, of course, wrong; while roots are few and, for a reasonable time after plants are re-potted, clear water only should be used, and very carefully, too, as in a too dry or too wet soil roots do not increase satisfactorily. The right time to apply a stimulant to a pot plant is directly the pot begins to fill with roots—when the latter begin to form a network round the outside portion of the ball of soil. I am not dealing with any special kinds of manure, as space will not permit of it, but in every case follow the instructions given with the manures and be under rather than over in measuring out the quantities. Fruits are mostly benefited if stimulants are applied when they are swelling, before, and after, the stones in them harden. Vegetables, too, when the growth is beginning to be very active and pods are swelling or hearts forming. Flowering plants in borders when the flower stems begin to form. The soil should always be moist.

THINNING HARDY FRUITS.

The finest specimens of apples and pears are generally grown on cordon-trained trees. These trees are restricted

to one or two main stems, and they are, as a rule, carefully watched and attended to during the summer months, while the ordinary bush, pyramid or standard tree is not. All cultivators do not possess cordons, but they may grow really fine fruits on bushes, espaliers and standards if they will thin out in good time the smaller specimens. Plums, peaches and apricots on walls should have first place in this work, as they will be more forward. The thinning should be done gradually, not all at one time. The fruits to retain on wall trees are those that are prominent and placed well away from the wall. At the final thinning plums should be left at 7ins. apart, apricots 9ins. and nectarines 9ins., peaches being allowed a little extra space. These distances are for the whole tree. It may be that more fruits will form on certain branches than on others. In such cases leave the fruits closer together to make up for the bare branches, and so secure the full crop for the tree as a whole. Pears are easily thinned, but apples are more difficult, because they grow in close clusters. The one retained should not be loosened when the surplus fruits are removed. The letter *a* shows the fruit to retain; *b*, *b*, *b*, the ones to pull off; *c* shows the best apple of the bunch; and *d* the ones to remove. Timely and judicious thinning results in such specimen fruits as the one shown at *e*.

GATHERING AND PACKING FLOWERS.

It is a pleasurable occupation preparing ground and growing flowering plants in it, and much more so gathering and sending, by post or train, some of the resultant flowers to friends and hospitals. Soon, now, our gardens will be overflowing with hardy flowers and, if we desire to cut and pack some of them, we should carry out the work in the right way. Roses, no doubt, followed closely by sweet peas, will claim general attention. The first named do not retain their freshness very long, neither do the sweet peas. It is useless cutting roses half-developed or fully so. They should be in that stage just showing the colour in the buds. I once wished to make a shower bouquet for a competition, using a particular rose. Not having sufficient, I bought some more in the bud stage—this being permitted by the rules—and exhibited the bouquet three days later, all the flowers being half and three parts developed. It was awarded first prize. Sweet peas should have at least one flower-bud on each stem and not all the buds fully developed. Annuals and spikes of herbaceous flowers should be in a state about three parts developed. I think the ideal time to cut the flowers is very early in the morning. The plants should be watered the previous evening, the spikes cut early the following morning and forthwith placed in water in a cool shed out of draughts. Use damp moss (not cut grass, as the latter heats) round the stems. Pack the flowers gently but firmly together in wooden boxes. Cover the flowers first with white, then with blue tissue paper. Have the stems moist, the flowers dry. GEORGE GARNER.

Gardens Open to the Public.—Aldenham House Gardens.—The Hon. Vicary Gibbs has again kindly consented to open the gardens at Aldenham House to the public during the Saturday afternoons of July, August and September, and the August Bank Holiday, on the same conditions as previous years, viz., that no dogs be admitted, and that children must be under the control of grown-up persons. On Saturday, July 18th, the Elstree Floral Fête will be held, when admission will only be by payment at the gates.

The Gardeners' Royal Benevolent Institution.—The Right Hon. Austen Chamberlain, M.P., has promised to preside at the eightieth anniversary festival dinner of this Institution at the Grocers' Hall, on Thursday, July 2nd next.

National Gladiolus Society.—The committee of this Society has arranged for their show to be held at the R.H.S. Hall, Vincent Square, on August 25th. Schedules can be obtained from Mr. A. Amos, 10, Bergholt Road, Colchester.

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GARDENING OF THE MONTH

FLOWER GARDEN.

ANNUALS.—Thin out. Transplant further batches. Sow a few hardy annuals for autumn flowering. Water frequently. Stake carefully any that have thin, straggling growths. Pinch the points of clarkia, calendulas, godetias and helichrysums.

BEDDING.—Plant out at once and water frequently until established.

BIENNIALS.—Sow in prepared beds wallflowers, myosotis, sweet williams, Canterbury bells, aquilegias, etc.

BULBS.—Lift soon, plant out in wild garden or dry off and later store in boxes.

CHRYSANTHEMUMS.—Stake border varieties, keep them free from pests.

DAHLIAS.—Plant out during the first week of June.

HERBACEOUS BORDERS.—Weed and hoe regularly. Water, if necessary. Restrict growths of strong-growing perennials, such as asters. Stake all plants soon, especially gladioli and hollyhocks. Fill in gaps with annuals.

LUPINS.—Sow seed of Lupinus arboreus, or strike from cuttings. Insert short-jointed shoots in sandy soil in a cold frame.

PERENNIALS.—Strike from cuttings and sow seed in pans in frames or in the open ground.

PESTS.—Fumigate the soil with carbon bisulphide for ants. Keep down aphis and caterpillars by spraying with Abol or Katakilla. Watch for slugs and destroy.

POLYANTHUS.—Sow seed of the Munstead strain. Lift and divide plants after flowering. Plant out in well prepared beds in partial shade. Water frequently.

ROSES.—Water rose garden. Feed roses with liquid manure. If attacked by mildew, dust with flowers of sulphur. Spray with soft soap and tobacco water for aphis. Pull up suckers of bush roses. Tie up ramblers and climbers.

SWEET PEAS.—Feed weekly with liquid manure. Water, if dry. Keep the surface hoed.

HARDY FRUIT.

APPLES.—Spray with soft soap, quassia extract to keep down aphis.

APRICOTS.—Stop gross shoots. Prune back side growths to within 6ins. Do not stop the leaders. Thin the fruit, and net the trees. Do not let them suffer from drought. Apply liquid manure at intervals.

CHERRIES, DESSERT.—Shorten back side growths, net the trees.

CURRANTS.—Summer prune the side shoots. Keep down aphis. Net the bushes if possible. Burn all prunings.

FIGS.—Regulate growths and tie in shoots.

GOOSEBERRIES.—Thin shoots of dessert varieties. Cut off and burn shoots infected with gooseberry mildew. Gather a portion of the fruit.

PEACHES.—Stop gross shoots. Lay in young wood. Thin partially the fruit. Syringe to keep clean.

PEARS.—Summer prune the young shoots. Do not touch the leaders. Thin cordon pears partially when fruit swelling and pinch side shoots gradually. Syringe regularly to keep trees clean.

PLUMS, WALL.—Shorten back side growths, lay in young wood. Water with liquid manure occasionally.

RASPBERRIES.—Mulch with rotted manure.

RHUBARB.—Cut off flower spikes and cease pulling at end of month.

STRAWBERRIES.—Hoe, lay clean straw under plants and net, if not already done. Water when fruit swelling.

VINES.—Disbud freely. Leave well placed strong shoots. Stop side shoots two joints beyond the bunch.

VEGETABLES.

ASPARAGUS.—Do not cut after mid-June. Give a dressing of salt.

BEANS.—Stake runner beans. Make another sowing of dwarf and runner beans. Pinch tops of broad beans if aphis present.

CARDOONS AND CELERIAC.—Plant out now.

CAULIFLOWERS.—Plant out. Water those in permanent quarters.

CELERY.—Plant out now. Water for a week or two. Dust with soot.

CHICORY.—Sow early in the month.

CUCUMBERS.—Plant out another batch in frames. Keep frames closed for several days. Damp down and syringe regularly. Peg down and stop established cucumbers.

ENDIVE AND CORN SALAD.—Sow now for early supplies .

JERUSALEM ARTICHOKES.—Draw up soil round tubers.

LEEKS.—Hoe between the rows and plant out remainder.

MARROWS.—Plant out now and protect with hand lights until established.

ONIONS.—Dust with lime and sulphur or spray with Burgundy mixture, if attacked by mildew. Give a light dressing of nitrate of soda. Sow onion "sets" on poor soil. Spray with paraffin emulsion to ward off onion fly.

PEAS.—Sow Autocrat peas during the first week. Draw up soil round plants, give a light mulch of rotted manure, if possible.

POTATOES.—Earth up and leave a groove on top of the ridge. Spray with Bordeaux mixture as a preventive against potato blight.

SEAKALE.—Disbud, leaving one strong shoot only.

SEEDLINGS.—Plant out in showery weather, cabbages, early broccoli, leeks, kales, savoys, Brussel sprouts and tomatoes.

SPINACH.—Thin seedlings, and hoe. Sow at once New Zealand varieties.

SPINACH BEET.—Sow now.

TURNIPS.—Sow on shady border. Thin out seedlings. Dust with soot and lime to check turnip fly.

GENERAL.—Hoe regularly. Keep down all weeds. Thin beet, carrots, parsnips.

SHRUBS.

FLOWERING SHRUBS.—Prune, after flowering. Lightly fork through the shrubbery.

RHODODENDRONS.—Remove seed heads.

BOX EDGING.—Clip now.

SUCKERS.—Remove all from grafted trees, such as lilacs, Viburnum Carlesii, etc.

ROCK GARDEN.

AQUILEGIA GLANDULOSA.—Sow seeds in cold frames. Transfer to flowering quarters when quite young. Water regularly.

AUBRIETIA.—Sow seed in frames, in pots or pans, with ample drainage. Shade pans until germination takes place.

GENERAL.—Hoe, weed and keep surface loosened. Water liberally. Cut back rampant rock plants to prevent them over-running others. Propagate by cuttings such plants as aubrietia, arabis, alyssum, iberis, etc.

FLOWERS UNDER GLASS.

BOUVARDIAS.—Pot up young plants. Stop them at each second leaf. Syringe to keep down pests. Vaporise with sulphur to keep down mite. Shade if very hot.

CALANTHES.—Feed with liquid cow manure. Give a fair amount of heat. Shade slightly and give liberal supplies of water.

CALCEOLARIAS.—Sow seed of herbaceous varieties. Shade and cover with glass until after germination. Prick off into pans of light, rich soil, when large enough. Place in a frame in a cool position.

CARNATIONS.—Select healthy malmaison carnations for layering. Plant in cold frames and later layer in usual way. Lift and pot when rooted and store in a cold frame or greenhouse. Pinch points of tree carnations. Syringe daily. Stand outside in frames carnations which have finished flowering. Syringe to keep down red spider.

CINERARIAS.—Prick off into boxes and place in a frame in a shady situation.

CHRYSANTHEMUMS.—Water those standing outside. Stake and tie the plants. Give final potting at once if not already done. Leave room for top-dressing. Watch for leaf miner. Remove infested leaves and syringe with quassia extract. Stop late flowering bush varieties.

CYCLAMEN.—Place in a cold frame, shade and syringe. Sow seed in slight heat.

HUMEA ELEGANS.—Sow seed now in pans. Place in slight heat.

LILIUMS.—Stake and tie loosely. Feed.

MIGNONETTE.—Sow in a cold frame.

POINSETTIA.—Take cuttings with a heel. Select young shoots about 4ins. in length. Insert singly in pots and place in a warm propagating case. Shade and do not let the cuttings flag.

PRIMULAS.—Sow seed of P. kewensis, P. verticillata and P. floribunda in cold pit or greenhouse. Prick off and keep in frames for the summer.

ROSES.—Top-dress and stand outside on boards in full sun. Spray with potassium sulphide if mildew seen. If attacked by aphis, spray with quassia extract and soft soap or Abol.

STOCKS.—Sow, in a cold frame, Brompton stocks for winter flowering. Remove lights when germination has taken place.

GENERAL.—Prune flowering shrubs. Ventilate well, water twice daily and damp down the walks. Stand any suitable hard-wooded plants outside on boards or on an ash bed.

FRUITS AND VEGETABLES UNDER GLASS.

APRICOTS.—Pinch points of side growths. Syringe under leaves to keep down red spider.

FIGS.—Do not let these suffer from lack of water. Ventilate freely trees ripening fruit.

MELONS.—Top-dress mounds with rich compost. Maintain a warm atmosphere. Keep thrips and red spider in check. Admit air more freely when fruit ripening. Support fruit in nets.

ORCHARD HOUSE.—Give copious supplies of water to pot fruit. Feed with liquid manure when fruit set and give a dressing of some reliable fertiliser. Remove superfluous shoots and pinch side shoots to six or eight leaves, but do not touch the leader. Ventilate well and leave on a small amount of ventilation each night. Vaporise house directly aphis seen.

PEACHES AND NECTARINES.—Give more air. Give a good watering just as the fruit begins to show colour. Do not syringe when fruit begins to ripen, but continue to damp down occasionally to prevent an attack of red spider. Thin fruit and tie in young shoots.

VINES.—Water well before colouring. Prevent scorching. Thin late varieties. Do not thin the shoulder too much. Support upper arms with raffia. Pinch and regulate the shoots. Give plenty of air whenever possible.

CUCUMBERS.—Top-dress, feed with liquid manure. Clean out any exhausted plants, wash down house, remake mounds of soil. Plant out young cucumbers when soil warmed through. Damp down and syringe twice daily.

TOMATOES.—Top-dress, feed frequently with liquid manure. Pinch side growths. Tie up regularly. Ventilate night and day. Give a dusting of Clay's fertiliser at intervals. Fumigate with hydro-cyanic acid gas if white fly seen.

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TULIP NOTES

Early Tulip De Wet.—This is an orange—or, perhaps, to be more accurate, a reddish-orange—sport from that fine tulip, Prince of Austria. My first introduction to it was in Amsterdam some years before the war, where it helped to decorate one of the specimen rooms at a large exhibition of women's work. Ever since then I have kept my eye upon it, and for a long time I have had it in my own garden. Familiarity has bred increasing appreciation, and I can now say that anyone who wishes to have one of the most beautiful, one of the sweetest and one of the most friendly of *all* early tulips in their garden must not forget to order De Wet. The flower is long shaped, and the orange ground of the petals is veined with red, which is more pronounced round the edges than in the centres.

Six days before writing these lines, a visitor pronounced it to be a sport of Prince of Austria by its scent. As to height, it is quite as tall as its sire. Advantage may be taken of this, if an early tulip bed is wanted, to introduce some Cardinal Rampollo, which, while being considerably dwarfer, has much the same colouring. To me a variation in height is more pleasing than a rigid uniformity.

Early Tulip Standard Silver.—Before the dawn of the twentieth century more striped varieties of tulips were to be found in our bulb lists than there were in 1924. I made it my business last year to try to get together a few of these old stagers. I wanted to show visitors to my garden what the "mania" tulips were like. They were all what we now call earlies; and what differentiates them from those with which we are now so familiar (*e.g.*, Yellow Prince, Prince of Austria and Cottage Maid), is that they were all striped. That these were the sort of thing that Petrus Hondius saw grown to excess (as he thought) in his neighbour's gardens there is no doubt. The first half of the seventeenth century was prolific in the production of both coloured and black and white flower pictures. In all of them there is the tell-tale leaf high up on the stem, which tells us they were earlies. Standard Royal Silver, or Standard Silver, or Silver Standard—for it has all these *aluses*—is undoubtedly one of the most beautiful of these striped early flowerers. The way the white and scarlet are combined, and its shapely pointed petals, give a peculiarly smart, well groomed appearance to the blooms. It has its counterpart in scarlet and gold, which is known as Standard Gold, but it is not so effective.

Other ancients are Arms of Leiden, Roi Pepin, Admiral Reinier, Globe de Rigaut and, of the edged type, Lac Bachuijen and Lac van Rijn. This edged type seems to have existed since the beginning of tulips in western Europe. It is distinguished by having some shade of mulberry red blooms with a distinct ivory white or cream edge to the petals. It seems to have been ignored in the eventful mania years 1635-37.

Mendel Tulips.—In a note in THE GARDEN a few weeks ago I promised to give my experience with these newcomers in the open ground. One year's trial under glass commended them as a distinct acquisition. It is the same with those outside. There are most beautiful shades among them, which are quite different from the colourings found among the earlies. I have one called April Queen, which is reminiscent of the pink cottage variety Sir Harry; and another, Early Beauty, a long flower of the softest rose with a little more than a suspicion of orange along the edges of the petals. Oranja and Salmoran are different shades of orange, and so on.

This is, as it were, the second lap. I must now wait and see what sort of an increase there will be when the bulbs are lifted. It makes the whole difference. No, or very poor, increase is more than a wet blanket on a bulb's prospects; it is a veritable extinguisher. Where are all those exquisite varieties that poor Walter Ware staged at the big Tulip Conference in London in May, 1915, and for which he was awarded a certificate of appreciation? Lady Love, perhaps the most charming of them all, practically makes no offsets. I bought a little stock of a very great beauty after the style of Eleanora many years ago, but I have now only a few more than when it first came to Whitewell. A tulip that emulates Peter Pan will find it does not share that person's popularity.

Tulipa persica (a small yellow species).—Try this cheap variety as a pot plant in a cold or very cool house. I never thought of such a thing, but twice this year in places wide apart I have seen it done with very satisfactory results. JOSEPH JACOB.

CORRESPONDENCE

WHERE WILL IT END?

SIR,—Why not take a leaf out of the Stud Book and follow in the footsteps of the pedigree stock-breeders? Why name immediately every new hybrid that is born? The first daughter of Mumtaz Mahal will be known for a year or two as Mumtaz Mahal filly, and will not have a name in her own right until registration papers have been taken out for her. A colt or filly may win races long before baptism. A horticultural stud book would be a universal work of reference. The quotation of the stud book number would be sufficient to identify and describe a plant. The *imprimatur* of the stud book would be prized by the hybridist and authoritative to all.—E. E. T.

BLACK CURRANTS.

SIR,—It is a pity that more people do not know as much about the Baldwin as does Mr. Copley, as evidenced by his letter on page 252 of THE GARDEN; but I should like to elaborate rather than contradict some of his remarks.

Baldwin is, as he states, generally the first of the black currants to bloom, but it actually suffers less from frost both at this time and later, than any other sort I know, so that if late frosts mar the prospects of a crop from the Baldwin, other varieties are still more badly damaged.

In my own opinion, cold winds are the worst enemy of the Baldwin and, indeed, of most black currants at blossoming time; but the shelter of a hedge or a few judiciously placed wattle hurdles is not difficult to provide in a garden and will often be found to work wonders in a bad year.

The blossoms of the Baldwin are so formed that pollination is exceptionally easy, a fact that, I believe, has a good deal to do with its astonishing cropping powers, a great deal of fertilisation being carried out by wind that would need the help of an insect in other varieties.

I think Mr. Copley rather defames the Baldwin *à propos* of its colour, other things being equal. I cannot recollect having had lower market returns for Baldwin than for other sorts; indeed, it is usually the other way about, owing to the better condition in which it arrives in the market.

I hope that Mr. Copley's opinion that Baldwin will never become really popular is incorrect; the insatiable demand of the jam-maker for Baldwin leads me to think that it is so.—A. H.

CAMPANULA LANATA.

SIR,—Some months ago, describing wild flowers in a Greek island, I wrote of this campanula as being of a "luminous campanula blue." I see Colonel Enever Todd sets beside this another description of the colour as "white, yellow or purplish." I think the campanula I found really was lanata. I saw it growing at Kew when I returned from Greece. But at Kew the flowers were of a yellowish or whitish colour, like the buds or half-opened flowers as I found them. I mention this in case someone who grows the plant may like to try imitating the conditions of its native habitat. Where I found it the plant grew only in complete shade, in cracks and ledges of vertical limestone cliff. Against the rosy grey of the rock the big Canterbury bell flowers shone with a surprising brilliance.—A PAINTER.

ROSA HEMISPHÆRICA.

SIR,—In a recent article in THE GARDEN the introduction of the old double yellow rose (Rosa hemisphærica) was ascribed to "Celsius," a typographical error for Clusius that one may hope was obvious. For the story, which Clusius tells in the "Rariorum Plantarum Historia," of his first acquaintance with the rose in a toy garden of cut paper that he saw at Vienna, is well known. But since writing of this rose I find that Joret in "La Rose dans l'Antiquitée et au Moyen Age," states that Claude Mollet, in his "Théâtre des Plans et Jardinages," 1563, refers to R. hemisphærica a few years before Clusius published his description of it. I have not had an opportunity of verifying the reference. It is a pity that this fine old rose is rather too tender for most parts of this country, but it is still in cultivation here and I believe that there is an old specimen in a garden near Woking, while at least one of our rose growers lists it in his catalogue.—F. A. H., *Chesham Bois.*

VIBURNUM BITCHUENENSE.

SIR,—One of your correspondents stated just lately that Viburnum bitchuenense was much superior to V. Carlesii, the flowers being larger, and pinker before opening. Messrs. Hillier and Sons of Winchester quote V. bitchuenense, and here is their reply to my enquiry: "The above plant (V. bitchuenense) is a poor thing, flowers very thin and not showy, and we would think it advisable for you to procure a better variety." Does your correspondent think that either he, or Messrs. Hillier and Sons, have got an incorrectly named variety, or can he have compared the V. bitchuenense with the inferior variety of V. Carlesii—for I have been told that there are two varieties of this latter plant in commerce, one much inferior to the other as regards size and waxiness of the flowers. I should be glad to know where he procured the V. bitchuenense, and if he can throw any light on the matter. V. Carlesii is such an exquisite thing that anything superior would be a tremendous acquisition.—A. L. B.

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A BOTANICAL DICTIONARY.

SIR,—Mr. C. F. Gray's suggestion of a dictionary of botanical Latin is a valuable one. As a newcomer among gardeners, I find it very difficult to remember distinguishing Latin terms, because as a general rule I have not the foggiest idea what they mean. So many plants are "paniculata," "rupestris," "pulchellum," "latifolia," "canescens," but not knowing what these terms mean they convey nothing to me. In other words, a great many of us know and use these names purely parrot-fashion and not intelligently. — GWENDOLYN ANLEY, *Woking*.

SIR,—As a regular subscriber to THE GARDEN, may I say how very useful such a botanical dictionary as C. F. Gray, Bourneville, proposes would be to many. In my opinion there should be no illustrations, nothing which would prevent its being bought by any employee, and it should have a clear "Introductory Explanation." Would it be possible to get the Fellows of the Royal Horticultural Society to guarantee a sufficient sum to bring out a book which would be of universal use. I would like to underline the words of the writer, "It should be quite a small pocket volume, also quite small in price."—EDITH W. HUTH, *Wokingham*.

SIR,—I was very interested in reading C. F. Gray's letter dealing with the pronunciation of botanical names. Even such everyday names as cyclamen and schizanthus are seldom pronounced alike. The reason, of course, is very obvious. A boy, when he commences work in a garden, naturally picks up the pronunciation of plant names from the head or under gardeners, and invariably continues to use the pronunciation given to the plants, whether right or wrong. As time goes on he hears plant names pronounced differently and is at a loss to know which is proper. Apart from the confusion this causes, a lot of interest in plants is lost, because, how can a man interest himself in a plant the name of which he is afraid to pronounce? Nothing annoys me more than to come across a plant name I cannot pronounce, which I am sorry to say often does occur. One looks in vain for a pronouncing dictionary of plant names at a price a working gardener can afford to pay. The cultural side of the plant gives the gardener plenty to think about, as climate, soils, etc., play a large part in success or failure, but pronunciation would be the same in all parts, if a Standard Pronouncing Dictionary could be brought out.—F. C. KING, *Milnthorpe*.

ERYTHRINA CRISTA-GALLI.

SIR,—*Re* Mr. Coutt's remarks on the coral plant, Erythrina Crista-galli, as a suitable plant for the greenhouse, it may be interesting to say that it is practically hardy in Devon and Cornwall if but a covering of cinder-ash or similar material be placed over the rootstock from November to early April. This plant stood out for near half a century to my knowledge at Bicton under a south wall, flowering profusely each year, proving a most interesting plant to all visitors.—J. MAYNE.

ON MANURES.

SIR,—A very interesting article in THE GARDEN recently discussed the preparation of mixed manures for horticulturists, and favourably mentioned many of the better articles on the market. That discussion was extremely valuable in so far as it gave the opinions of the users of mixed manures. The writer hopes that a few words of "inside information" will not only supplement the general knowledge of the subject of manuring but will also bind consumers and producers in closer ties of friendship and of mutual trust. The writer, with several years of scientific and practical experience of this subject, would strongly emphasise the fact that one cannot know too much about the type of soil, crops, previous manurial treatment and even climatic conditions in helping an enquirer to obtain the finest possible results. The writer has often given advice on the actual mixing of manures and submitted actual samples. Now, in manuring, the baser or less soluble manures are essential in opening up heavy soils and giving body to light soils, but no one ought to have to pay for base manures which are not available to crops as manures. In other words, only the most finely ground base manures are worth much, and these, in many cases, are extremely valuable. Quick-acting manures are very necessary, but one can imagine the crops rendering small thanks for splendid dinners for a week or two and starvation after a few days of rain. Thus the man who knows his job makes a carefully calculated mixture of both classes of manures, and practical experience invariably supports him. In agriculture the noble progress of the last decade was largely the outcome of the long period and investments of our forefathers in slow-acting manures. To avoid waste of money to the less enquiring men certain principles must be known. Acid soils need lime and alkaline manures where possible. This involves reducing superphosphates or dissolved bones, sulphate of ammonia and natural manures, or substituting bones, basic slag, nitrate of soda, etc. Alkaline soils are rare, but they can stand the above acid manures. We repeatedly find a deficiency of lime in soils submitted, although excess lime is too hungry for manures to be profitable. As to general principles of manuring crops, it may be that, briefly stated, leafy crops desire nitrogen, seeds desire phosphates and starchy crops (bulbs, roots, etc.) potash. But *all* plants require some of each. Individual crops have marked peculiarities, with the result that the subject is full of pitfalls for the amateur. Manufacturers produce standard mixtures for flowers, fruit, market gardening, and special ones for tomatoes, potatoes, vines, roses, chrysanthemums, lawns, etc., and these, from reliable firms, are excellent and economical.—GEO. WALWORTH, *West Bromwich*.

SUNDRIES AT CHELSEA SHOW

(*Continued from page* 320.)

Messrs. G. Hayward and Co. were exhibiting greenhouses, portable hand-lights and heating apparatus.

The Paramount Furnishing Company had very comfortable garden chairs and also tables to match. These were made of sea grass, which does not creak, has a certain amount of give in it, and is very durable.

A small group of inexpensive garden furniture was exhibited by Messrs. T. Syer and Co.

The words "Say it with flowers" bedecked the stand of the Florists' Telegraph Delivery Association, which has a membership of 3,000 florists in all parts of the world. This Association undertakes to deliver fresh flowers to almost any place at home or abroad, however distant it may be.

The Padworth Industries had some solid and well made garden chairs and seats.

Really good fibrous turf loam is often hard to get, but Mr. A. B. Johnston had samples of good quality loam on his stand.

A general exhibit of sundries was shown by Messrs. R. Melhuish, Limited. Fruit protectors, lawn mowers, tools, syringes and plant foods of all kinds were for sale.

Mr. J. Haws was exhibiting a selection of his famous watering cans.

The Godiva Engineering Company were demonstrating the working of their motor mower and grass edge cutter.

Messrs. George Monro, Limited, the Covent Garden salesmen, had a varied exhibit of sundries. Baskets, china bowls, tools and fertilisers were shown.

The gardening gloves shown and made by Miss A. Everitt should, by their appearance, be very durable.

Messrs. George Fowler Lee and Co., Ltd., were showing fruit and vegetable preserving appliances.

The South Metropolitan Gas Company had an exhibit of sulphate of ammonia, a wood preservative and disinfectants.

The Radium Fertiliser Company were exhibiting their patent fertiliser, with which many people have had good results.

Mr. C. A. Jardine was demonstrating the cutting powers of the super-secateur which he has invented.

Good quality is the keynote of every implement manufactured by the Wilkinson Sword Company. A large selection of grape scissors, pruning and budding knives, flower scissors and secateurs were on view at this stand.

A gay and artistic effect was produced by the exhibit of coloured bowls and chairs shown by the London Gardens.

Bird-baths, sundials and garden ornaments in various shapes and designs and made of artificial stone were shown by Messrs. Kelly and Co., Limited.

Messrs. H. Scott and Sons exhibited fertilisers, fruit tree washes, plant stakes, barrows and samples of peat and loam.

All the equipment necessary for successful bee-keeping was exhibited by Messrs. E. H. Taylor, Limited, the bee specialists. A multi-tray cabinet for storing fruit was also shown on this stand.

The New Cross Timber Company had an exhibit of rustic garden furniture, arches, fences, etc.

Messrs. A. Smellie and Co. had several useful and improved implements among their large assortment of sundries.

In a case on the exhibit of Messrs. C. T. Overton and Sons bees were busily working. Hives, combs and all the necessary oddments for bee-keeping were being shown.

Mr. Walter Unwin exhibited garden furniture of rustic design, also loam and leaf-soil.

Mr. William Sinton was showing polished oak plant tubs and vases which were well made. "Citadel" chairs were also shown.

A selection of folding tables was shown by Messrs. Abbott Brothers. These tables are very light, but yet strong.

A collection of hand-made baskets and leather goods was shown by the "Not Forgotten Association." All the goods on this stand were made by disabled soldiers who are still in hospital, many of them being permanently disabled.

Messrs. T. H. Webster and Son were showing to the public labels and the "Cascade" nozzle.

Trucks, ladders of all lengths and wheelbarrows were shown by Mr. H. C. Slingsby.

Lord Roberts' Memorial Workshops had an exhibit of garden furniture, baskets, etc.

Messrs. Holtzapffel and Co., Limited, exhibited garden tools of high quality which were hand forged from the best steel.

Mrs. Torkington was showing garden labels and indelible ink with which to inscribe them.

Messrs. Castle's Shipbreaking Company, Limited, had a good exhibit of garden furniture.

In our report of Mr. Reginald Winder's formal garden at Chelsea Show, an unfortunate printer's error occurred relating to the paragraph dealing with berberis and double-flowered gorse. This paragraph did not refer to Mr. Winder's garden.

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GARDENERS: III—WOMEN

FOR centuries the British Isles has been famous, not only for its gardens, but also for the gardeners it produces. Thus has been evolved a craft that has an immense tradition behind, with its consequent feeling of *esprit de corps*. All famous gardens have been man made, and it is only within the past few years that women have seriously taken up gardening. Quite apart from the manual work attached to horticulture, many of the great qualities of our gardeners in the past have been attained because they have been trained in big gardens, where they have been through the mill in every kind of gardening. Their entire training has been practical. It is true that those who have learned something of the theoretical side of the subject have probably risen higher than the man with no theoretical background, but anything of the theory of gardening that they may possess has been learnt on their own initiative.

The woman who wishes to take up gardening for a living starts with this great handicap, that she has never been through the mill in a great private garden. For obvious reasons it is difficult for a woman to obtain the necessary early training in a private situation, so she has had to fall back either on a nursery or on a horticultural college. In a nursery she will probably learn only one branch of horticulture, and however skilled she may be in this branch, she will lack a general horticultural education. In a horticultural college there is too much theory and too little practice. Far be it from me to belittle the excellent training given by these colleges, but their very nature makes it difficult for them to complete what they have started. Most of them take in pupils who to begin with do not know a cabbage from a watercress. Owing to the numbers of students a great deal of the teaching has to be by rule of thumb, and individual effort counts for little. A course may take one or two or three years, and so a definite period has to be set aside in which to learn propagation, and another planting, and so on. In fact, it is teaching gardening by time-table: gardening, a trade where time counts for nothing and the longer a man lives the more he finds he has to learn.

This applies both to male and female students, but the female is the more handicapped, for a male can always begin or finish his training in a garden, which a woman cannot always do. The consequence of this rush of learning is that women know either too much or too little of gardening. Theoretically they often know more than a man-gardener; in practice it is the opposite. This handicap is a great pity, for in some garden work they are far superior to men. Wherever neatness of handiwork is required, such as in pricking off seedlings, they are pre-eminently superior. They are usually more tidy than a man and they have more imagination and so are frequently better designers of a garden or arrangers of colour schemes. But these assets do not make a thorough gardener and so their present utility in a garden is limited. The great blessing of gardening as a profession is its never ending variety, but if you are limited to one particular job, because you are expert at it alone, this makes even the pleasantest occupation become purely mechanical in time.

Unless some scheme can be devised by which a woman can get a general groundwork for at least a year *before* entering college, I see no great future for women as professional gardeners.

Apart from the professional side, there are thousands of women who have taken up gardening as a hobby. Many of them have become extremely proficient gardeners, but the majority of them are only interested in the result. They leave the why and the wherefore of a plant's growth to a male relation or to their gardener and so are extremely ignorant about the fundamentals of gardening. They can talk glibly about the beauty of this or that, but if you ask them if it is propagated by division or cuttings or layers, they either make a guess or look at you in blank amazement. But even they possess certain qualities in which they excel. They frequently have that undefinable factor, an "eye" for a plant. Their judgment is frequently superior to that of a man, if they can keep their keenness in check; they almost always have a better idea of colour and of the general planning of a garden.

Although it is difficult to find a man and a woman who can run a garden in perfect harmony, yet there is little doubt that intelligent team work makes the best gardens. Each possesses something which the other lacks, and so, theoretically, co-operation should achieve the best results. E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

CURRENT WORK IN THE HERBACEOUS BORDER, by R. V. G. Woolley.

THE CANADIAN KEW, by George Simpson.

MY ROCK WALL, by Edward Cahen.

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RHODODENDRON RACEMOSUM & ITS ALLIES

BY H. F. TAGG.

IN THIS ARTICLE THE CHIEF CHARACTERISTICS OF A FEW MEMBERS IN A CLOSE CYCLE OF RELATIONSHIP ARE CLEARLY DESCRIBED, AND IT SHOULD PROVE OF ASSISTANCE TO THOSE WHO ARE IN DIFFICULTIES OVER POINTS OF NOMENCLATURE.

THE explorations of Mr. George Forrest and Mr. Kingdon Ward have added to cultivation three species of Rhododendron which, like R. racemosum, bear freely, in April, fasicles of small rose-coloured or white and pink-tinted flowers.

The three species are: R. mollicomum, Balf. f. et. W. W. Sm.; R. pubescens, Balf. f. et Forrest; and R. hemitrichotum, Balf. f. et Forrest.

R. racemosum has been in cultivation for some thirty years and as it is easily propagated, it is now fairly common in gardens. Discovered by Delavay in 1882, it was first raised from seed in Paris in 1889. In 1892 it was introduced to cultivation in Britain by Messrs. Veitch. Forrest gathered it in 1904 in Yunnan and it was thus one of the earlier re-introductions of Yunnan Rhododendrons made by that explorer. It was also collected in western Szechuan, where it is rare, by Wilson, in 1908. Since 1904 numerous gatherings have been made by Forrest and Ward in Yunnan, some of which appear to be better garden plants than that originally introduced.

R. mollicomum was found by Forrest in 1913-14 on the mountain slopes of the Chungtien Plateau and north-east of the Yangtze Bend. There are specimens in the Herbarium of the Edinburgh Royal Botanic Garden of plants which flowered at Caerhays Castle in 1922, raised from Forrest's seed under the type number Forrest 10347. This is the earliest record I have of its flowering in this country, but it is very probable that Forrest's No. 10347 flowered in cultivation at an earlier date.

In 1921 Mr. Kingdon Ward gathered three specimens, to which he gave the numbers 3952, 3952A, 3953. The herbarium specimens are respectively R. racemosum, R. mollicomum, and R. pubescens. These were gathered east of the Yangtze Bend and the serial sequence of the numbers suggests that the plants were growing close together. From seed sown under the number 3952 there have been raised both R. mollicomum and R. pubescens, and from 3952A, R. pubescens.

R. pubescens flowered last year at Headfort Gardens, Kells, Co. Meath; this year at Tower Court, Ascot, at Edinburgh, and at Caerhays Castle, Cornwall, under the number Ward 3952. The species was first found by Forrest in 1918 on the slopes of the Muli Mountains (Forrest, No. 16812).

R. hemitrichotum was found by Forrest in 1918 (Forrest, No. 16250), on the slopes of the Muli Mountains, and in 1921 Ward gathered it under the numbers 4050 and 4994. I have no record of it having flowered in cultivation until this year, when, under the Forrest type number, it flowered at Caerhays Castle, and under the Ward numbers quoted, it flowered at Tower Court and at Edinburgh. It should be noted that not all the plants growing under the quoted Ward numbers are typical R. hemitrichotum. Some appear to be forms of R. racemosum.

Features common to the four species are: Shrubs freely branched, twiggy and of scrub habit, with small leaves, pubescent, hairy or waxy below. Flowering buds, each bearing fasicles of two to four flowers, borne in the axils of foliage leaves on the upper parts of the shoots. Flowers small, with short tube (long in R. mollicomum), lobes five, lepidote outside and hairy within at the throat of the tube. Stamens ten, puberulous to hairy at base. Peltate scales present on stem, leaf (upper and under surfaces), pedicel, calyx, corolla and ovary.

Characters which distinguish typical plants of the species are:

(*a*) Species with leaves grey-white below.

1.—R. racemosum.—Leaves elliptic, oval or obovate, about 1½ins. long, ¾in. broad. Leaf upper surface not puberulous in typical forms. Calyx lobes not ciliate. Ovary lepidote, not puberulous.

2.—R. hemitrichotum.—Leaves narrowly oblong or lanceolate, about ¾in. long, ¼in. broad. Leaf upper surface densely and persistently puberulous with short, soft white hairs. Calyx lobes ciliate. Ovary lepidote and puberulous all over.

(*b*) Species with leaves pale green below, puberulous or bristly.

3.—R. mollicomum.—Leaves narrowly oblong or oblong-obovate, about 1in. long, ¼in. broad, puberulous above and below, not bristly. Calyx crateriform, lepidote and puberulous, not ciliate. Corolla oblique, tube slightly curved, longer than the lobes. Style puberulous at the base for about one third of its length.

4.—R. pubescens.—Leaves narrowly oblong-lanceolate, about 1in. long, ¼in. broad, pilose and bristly above and below. Calyx setulose-ciliate at the margin. Corolla-tube not longer than the lobes. Style glabrous.

In R. racemosum and R. hemitrichotum the leaf under surface is covered with minute wax-covered pegs. These give to the under surface the grey-white colour. In both species hairs are absent from the under surface, but peltate scales are present, sunk in small pits in the epidermis. In R. hemitrichotum the young stem, pedicel and the upper surface of the leaf is clothed with short soft white hairs. These are absent in typical R. racemosum, but there are forms that are more or less puberulous on stem and leaf upper surface. The leaf shape and size are distinctive in typical forms, but in cultivation there are forms intermediate between R. racemosum and R. hemitrichotum. They may be hybrids. Typically the ovary of R. racemosum is covered with scales, but hairs are absent. In the forms with puberulous foliage, hairs may be present on the upper part of the lepidote ovary.

R. mollicomum has a soft, puberulous hairiness on the leaf upper surface and on the under surface also. A wax covering is absent and from R. hemitrichotum it is distinguished also by the absence from the latter of hairs on the underside of the leaf. R. mollicomum is distinct from the other three species in its bilateral corolla, with relatively long tube. In the other species the corolla tube is wide and short and the flowers are almost regular. Moreover, the style, glabrous in R. hemitrichotum and R. pubescens, is conspicuously hairy at the base in R. mollicomum.

The leaves of R. pubescens are clothed above and below with soft, short hairs, and with longer bristle-like hairs also. The presence of the latter on foliage and stems distinguishes this species from the other three. From R. mollicomum, its nearest ally, it is distinguished also by its glabrous style and ciliate calyx. On the type plants the leaves are about 1in. long, lanceolate or oblanceolate, but young plants in cultivation show variation in the size and shape of the foliage, generally speaking the leaves are larger and may be as much as 1¾ins. long. The flower colour and to some extent the flower shape of this species, convey a suggestion of "apple blossom" on a small scale.

All are essentially scrub plants from open areas, although odd gatherings of each have been made in thicket or open forest. As they come from the same areas as R. racemosum it is probable that cultural treatment that suits R. racemosum will suit the others also, and it will most likely be found that, as with R. racemosum, the best effects in gardens will be got when plants are grown in clumps or masses. Indeed, there are few species of the genus, of shrub or bush habit, that do not lend themselves to this treatment with happy results.

The species here described should make excellent rock garden plants grouped on sites suitable for small shrubs. I think, also, that they will be found suitable for banks and slopes where other forms of the genus fail for want of soil moisture. This is a speculation only. We know too little about them in cultivation to be able to indicate with any certainty the conditions that will suit them best, but it can be said with certainty that they are all xerophytes. They have those morphological features which we generally associate

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with conditions of physical or physiological drought. The narrow leaves with thick cuticle and hairy, scaley and waxy covering, and the tendency of the leaf margin to curl over and protect the lower transpiration surface, are adaptations which impede loss of water from the leaf surfaces. Such adaptations are characteristic of plants growing in dry situations, and where atmospheric factors tend to dry the plants quickly. They are also found in plants growing in situations where soil factors render the quick uptake of water by the roots difficult, although the soil may not be physically dry. These conditions are met with on unretentive soils—sandy, gravelly or stony—and on peaty moors, where, in spite of a physical wetness, absorption of water by the plant is difficult owing to the presence of humus acids. The wet peat, to the plant, is physiologically dry.

In this connection it is interesting to note what collectors say about the situations in which their various gatherings of specimens were made.

For R. hemitrichotum we are given by Forrest such situations as "open rocky pasture," "dry open meadows and rocky slopes," "dry rocky slopes amongst scrub," "open thickets." Ward says of his 4050, "In dry oak forest on steep slopes, much better and flowers more freely as a small shrub (1ft. to 2ft.) on open sheltered slopes in the scrub belt."

R. mollicomum has been gathered "in open scrub," "in open situations among scrub," "on margins of pine forest," "in open thickets in dry situations," "on dry slopes."

R. pubescens was gathered by Forrest "in thickets amongst scrub," and "amongst scrub on dry rocky slopes."

R. racemosum in its many forms has been gathered in more diverse situations. We have it from areas with field notes, such as "open scrub," "open dry stony situations," "open situations on downs," "open mountain pastures," etc. As with the other three species it has been gathered in the more open forest formations, such as "mixed open oak and pine forests" and "open situations on the margins of pine forest." R. racemosum is recorded also from "open boggy situations" and "peaty boggy ground in open situations." As already explained, peaty bogs are physiologically dry. This occurrence of R. racemosum on such physically diverse soils as "dry stony situations" and "peaty bogs," has a parallel in the distribution of some of our native heaths. Some species of Erica and Calluna vulgaris are essentially moorland and peat-soil denizens in the north and west, but in the south and south-east the same species occur on dry, gravelly or sandy "heaths" and in dry patches in open mixed woodland.

Other Rhododendrons related to the four here discussed are: R. spiciferum, R. scabrifolium, R. virgatum and R. oleifolium.

R. spiciferum is a near relative of R. pubescens and may be regarded as the southern representative of the latter species. It comes from the district of Yunnan-fu. R. spiciferum is a more asperous plant than R. pubescens. In many features it is an intermediate species between the narrow leaved, bristly, but not asperous R. pubescens, and the much broader-leaved plant, R. scabrifolium, with its marked foliar asperities.

R. virgatum comes from Sikkim and Bhutan. R. oleifolium is the Chinese representative of R. virgatum. It should be noted here that in cultivation there are forms of R. racemosum, raised, I believe, from Wilson's seed, passing under the name R. oleifolium. They are not that species as described by Franchet. I assume that those writers who refer to R. oleifolium as hardly to be distinguished from R. racemosum, have in mind some of these forms of R. racemosum growing under the name R. oleifolium. True R. oleifolium is distinct from R. racemosum.

The name R. sino-virgatum was provisionally suggested by the late Sir Isaac Bayley Balfour for Forrest's early gatherings of R. oleifolium. This was before he had seen the type of R. oleifolium. After he had seen it he recognised that Forrest's gatherings were the same species as Franchet's R. oleifolium. The name R. sino-virgatum was never published, but by correspondence and the exchange of plants the name has got into use in some gardens. Plants in cultivation under the name are R. oleifolium, Franch.

A CLOSE ALLIANCE.

(From left to right): probably Rhododendron pubescens, 3952A, Ward. R. pubescens, 3952, Ward. R. racemosum.

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JUNE WORK AMONG CHRYSANTHEMUMS

THIS ARTICLE, FULL OF CULTURAL DETAILS, COMES AS A TIMELY REMINDER TO THOSE WHO WISH TO SUCCEED WITH "CHRYSANTHS" IN THE AUTUMN MONTHS

WHETHER the purpose in view is to furnish the greenhouse or conservatory, to enter the competitive arena of the November shows, or to ensure a bountiful supply of decorative flowers for cutting, June is an important as well as a busy month for the chrysanthemum grower. The plants are outside, not necessarily because the weather is so glorious that they will thoroughly enjoy every hour of night and day, but because, however rough the wind may be, however dreary the wet day, cruel the hailstorm or chilly the damp night air, the time of the year has come when a glass roof overhead will work havoc with chrysanthemums, drawing up the stems like attenuated rubber tubing, softening the foliage and then scorching it during the first hour of sunshine, and encouraging the rapid development of gnawing and sucking pests and fungoid diseases. Yet there are chrysanthemums to be found under glass in pits, and even in greenhouses, while the month of June drops its days one by one; it happens thus every year, and every year some chrysanthemums which ought to have been lusty, robust plants struggle through a painful, sickly existence.

SUMMER QUARTERS.

Southern growers may have got a good many plants into their flowering pots by June, but even so it is unwise to have them so early in their summer quarters; they should be given a brief spell under the shelter of the cosiest wall or, at any rate, in some place where winds do not punish them. By mid-June, however, it should, in all but notoriously rough quarters, be the aim to get the plants well out in the open, still contriving by some means to ward off the harsher winds, by the erection of a temporary screen if no permanent windbreak exists. Bear in mind that, generally speaking, it is not north winds that trouble British gardens in the summer months. In many cases, a garden that is well protected on the northern side suffers a great deal from strong south-westerly winds in summer.

Chrysanthemums must have air, light and sun, but they do not want roasting in July and August by standing on the southern side of a 10ft. brick wall.

It is unwise doggedly to determine to get all plants into flowering pots by a certain date. All varieties do not grow alike, and late struck cuttings are obviously not ready for final potting so early as those rooted in January and February. More harm than good will accrue from prematurely potting a plant in a 10in. pot which has not comfortably filled its 6in. pot, for the large body of soil does not, as novices are prone to imagine, encourage rapid growth. Of course, it is equally unwise to leave a plant to become badly pot-bound in any intermediary stage. Southerners can start potting about the end of May and finish by the end of June, while Northern growers should commence and finish ten days or a fortnight later. Plants for mid-winter decoration or cutting may be potted all through July.

A WONDERFUL PLANT FOR A FIVE-INCH POT.

STAKING.

Plants should be staked with at least one permanent full-sized stake as soon as potted up. Subsidiary stakes may be inserted round the edge of the pot at a later date, but the first main stake should be close to the main stem of the plant, and it is bad policy to begin with a 2ft. stick and then have to substitute it finally with a stout 5ft. or 6ft. cane, for such a task can rarely be accomplished without injury to roots or foliage, and frequently means limbs of brittle plants being broken.

Never be satisfied with one tie, but be liberal with raffia, so long as the ties are neatly placed and hidden by foliage. The raffia should be strong, and should first be tightly tied to the stake and then looped round the stem. Take care that the point of contact is midway between two leaf-joints, not resting upon an axil. Draw the ends of the loop until the raffia just touches the stem, then tie the knot. Allow no stem to be drawn from its natural position, and, above all, do not wind raffia round a stem to prevent its swelling in a natural manner.

Where a broad path runs north and south through a garden, the chrysanthemums may be placed in a single row along the side of the path. Allow all the room possible between the plants, and, at any rate, do not permit the foliage of one plant to touch another. The pots should stand on two battens with space between to admit of the free passage of water from the drainage holes and to prevent worms gaining access to the root-run. Some method must be adopted to prevent plants being blown over, and probably the best plan will be to run a taut, strong cable wire the whole length of the row, strained to firm uprights driven well into the ground and stayed at the foot. The tops of the stakes can be tied to this wire, and the plants will be safe. Circumstances do not always conform to our most ardent desires, and it may be necessary to run more than one row of plants, and these from east to west instead of north to south. So make the best of what cannot be avoided: and that will be done by keeping the rows as wide apart as possible, and placing the dwarf plants on the southern side, so that they are not shaded by the taller ones.

WATERING.

There may be nothing new to tell about watering, but there are a few points that, apparently, require eternal reiteration—they are so perpetually disregarded. A 10in. pot should have almost 2ins. of water-space to enable the whole body of soil to be moistened properly. If it can possibly be avoided, do not water with fresh-drawn tap water; even a few hours' exposure to sun in a broad, open-topped tank is of appreciable benefit. Whenever a plant has become so dry that the edges of the soil part from the pot, the plant ought at once to be freed from the supporting wire and immersed for half an hour in a tank. This is laborious work, but no other method is fully satisfactory. Some growers are immensely fond of daily overhead syringing: it certainly is a means of keeping the foliage clean, but it undoubtedly softens both foliage and stems, and that is not good for the plants. When plants get smothered with dust, a drenching sufficiently forceful to clean the leaves is necessary, but the water used should be tepid—indeed, almost warm. Apart from such a necessity, it is preferable to rely upon flooding the standing-ground on hot evenings, and occasionally to spray with an insecticide.

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PESTS AND DISEASES.

Pests and diseases must have no peace. A nicotine wash is most effective as an insecticide, and sulphide of potassium is the best all-round fungicide for the rusts and mildews that worry unhealthy chrysanthemums; but bear in mind that the presence of fungus on chrysanthemums is evidence of erratic culture. Admittedly a few varieties are inherently susceptible to disease; they are the weaklings of the tribe, and are only tolerated because of exceptional beauty of their flowers. These, however, are not varieties for novices, but rather for experts who have little need of tuition.

FEEDING.

The common and usually common-sense maxim in regard to feeding plants is: Do not begin until buds are set; and some quite good growers adhere to this principle with chrysanthemums. There are two points, however, in regard to these particular plants which must not be lost sight of, especially by the exhibitor. A chrysanthemum makes a great deal of very substantial growth before it sets buds, and the plants have to be watered so frequently and so liberally that whatever nourishment there may be in the soil becomes excessively diluted, and to a considerable extent washed away through the drainage. Therefore the stems and foliage require nourishment, for without sturdy stems and big leathery leaves well built blooms are unobtainable.

The nature of the feeding in the early stages should differ from the later diet. Sulphate of potash is an excellent chemical food for stimulating strong, substantial foliage. Sulphate of ammonia and nitrate of soda both induce soft, flabby growth. Their only real utility is to give a fillip to a laggard plant, but the potash builds solid substance in leaf and stem. Soot water improves colour in the leaves; it is a moot point whether it really does more than that, but even this is useful, especially where some check has caused a pale, starved appearance in the leaves. Sheep manure is good for early feeding in liquid form, and it is better to ring the changes between the three than to begin with and adhere to any one kind of food. Weak and often is the golden rule in feeding. After buds are set a good proprietary chrysanthemum fertiliser should become the staple diet, still with an occasional change to a liquid animal manure.

PINCHING.

The exhibitor will have completed his "stopping" by the time this article appears in print, for April and May sees most of this work finished, although for mid-winter flowering a good deal later will be the time for final stopping. Pinching, however, is a task which must be carried out throughout the summer, as it involves not only reducing the "breaks" which are to be carried on, but pinching all the tiny young growths which break from the axils of the leaves, and which only inflict heavy labour upon the plant to supply them with nourishment that the important growths require. The proper method is to do a little pinching every day, never allowing a useless growth to become too strong to be cleanly removed by pressure of the thumbnail. Be always careful not to break or spoil a main leaf, for every one of these has its own functions to perform for the benefit of the plant. Disbudding is another matter, but belongs to a later period than this article is intended to cover.

A. J. MACSELF.

WELL-GROWN PLANTS OF CHRYSANTHEMUM SIR EDWARD LETCHWORTH.

GARDENS OF HEALING.—II

THE FOUR FLOWERS.

AMONG the many common plants whose healing properties are universally recognised in France there are four which are especially sought after. These are known as *Les Quatre Fleurs*. They are Papaver Rhœas, Verbascum Thapsus, Malva sylvestris and Viola tricolor. The petals and other parts of these plants are employed separately as medicines, but they are more usually mixed in equal quantities and used as *La Tisane des Quatre Fleurs*.

PAPAVER RHŒAS (the common red poppy; Fr. Coquelicot).—The narcotic properties of the poppy family are well known to everyone. They exist in the essences of the petals, which must be dried *very rapidly* and stored in a dry place. Opium is extracted from Papaver somniferum and should, of course, be only administered by professional people under doctors' orders; but an infusion of the capsules of P. Rhœas (three or four to a pint of milk) induces calm, refreshing sleep and quickly soothes toothache or neuralgia if applied *externally*. This is done by steeping a piece of flannel in the infusion until it is soaked and then wrapping it round the patient's head. This is applied to tiny children in France to induce natural sleep, and in cases of acute bronchitis, lung trouble and whooping cough a dose of infused poppy petals is given under doctor's orders. Dried poppy petals cost from 25 to 30 francs a kilo in France. The plants are very plentiful, but it takes a long time to collect a kilo of petals.

VERBASCUM THAPSUS (great mullein; Fr. Bouillon blanc) is still much used in some country districts in Britain. It is the plant *par excellence* for chest complaints, an ointment being made from its flowers which is undoubtedly of great value. On the Continent it has a great repute, not only for the above maladies, but also as a cure for all rheumatic and gouty disorders. For this purpose the root of the mullein is dried and cut into rounds, which are made into a decoction which is taken three times a day. A gentle laxative and a blood purifier is made from the flowers of this plant Its leaves boiled in milk are used in France to cure phlebitis and to heal cuts and burns.

Verbascum Thapsus is a magnificent plant, and 1½yds. should be allowed between the plants for the full development of the branches. The flowers should be gathered and dried *in the sunshine* and handled as little as possible. They must be stored in a dry place.

MALVA SYLVESTRIS (common mallow; Fr. mauve).—The seed vessels of the common mallow are wholesome and allay irritation owing to the mucilage they contain. This "stickiness" is what make them so beloved of English and French children as "cheeses," or *petits formageons*. The whole plant cures colds and coughs and produces expectoration. For colic and internal complaints the soothing properties of its leaves are used. An infusion of these is a sovereign remedy for dysentery not only on the Continent, but also in Egypt, where it

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grows abundantly and where in Arab houses the whole plant is highly prized as a vegetable and is cooked like spinach. To allay irritation in rash diseases or to stop tickling in the throat an infusion of mallow leaves is used. Poultices made from the fresh root are applied to boils and gatherings, and a *very* hot one quickly relieves the pain of violent gout.

VIOLA TRICOLOR (pansy).—"Tisane des Pensées" is a popular and much-used remedy in France for all skin diseases. For several weeks a cupful is taken three times a day. Dried pansy leaves reduced to powder are put in the food of French infants who are inclined to eczema. The fresh leaves are a laxative and when dried are used to allay feverishness from whatever causes it arises. Pansy roots reduced to powder are beneficial for emetic purposes.

The petals of these four plants mixed in equal quantities form a household medicine in France which can be safely given to anyone. It is laxative, soothing, a blood purifier (hence it is anti-rheumatic), a preventive of coughs and colds, and allays feverishness. It is easily made at home, and is an absolutely safe remedy. It is astonishing that so efficacious a medicine is unknown in England.

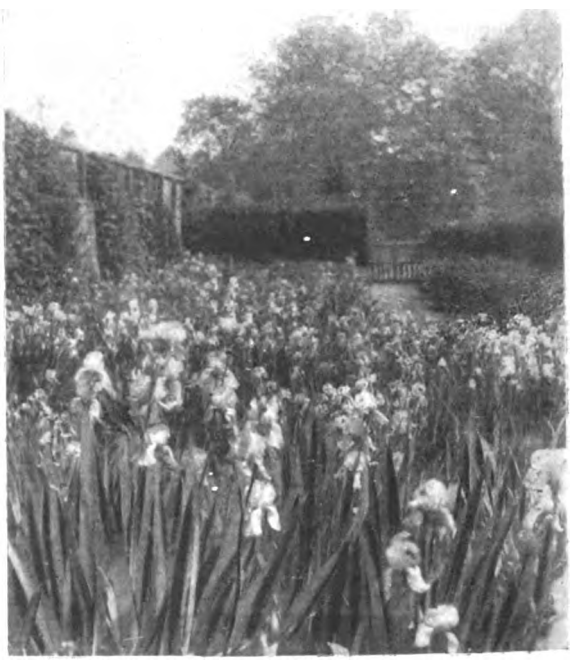
VICTORIA SLADE.

FRAGRANCE IN THE SUMMER GARDEN

SUMMER with its increasing light and heat is so full of flower perfume that when one begins to consider it, the impression is apt to be rather a medley, but a little more leisure will suffice to disentangle this and one of the first things to emerge is the garden pink. Would that we could cull afresh one's first impression of this generous flower. That one might once again gather and inhale one's first breath of this inimitable perfume. That, alas! is beyond our powers, but we may renew the pleasure annually and, having renewed it, retain it for many weeks by growing as wide a range as possible of the varied species and varieties that possess this gift. The pink is a plant that has fluctuated in popular favour and recent years have seen many remarkable fresh developments, but, when one casts back to forgotten years, one discovers variety after variety, now lost to cultivation.

Old volumes of the *Botanical Magazine* will reveal some astonishing mathematically marked and coloured varieties, and one cannot but help wishing that once again these might come to life and reveal whether they too were notable for distinct perfume. It is certain, however, that our present day varieties are not lacking in this respect and, right up from the lowliest of alpine forms, such as fragrans, to the lordly carnation itself, we may follow a perfumed pathway of tremendous attraction. And what magnificent garden plants they are too! How generously and gorgeously they flower with an inimitable wealth of colour and a habit that leaves nothing to be desired, while even in the depth of winter they still furnish a splendid touch of colour by reason of their evergreen and ever-grey leafage.

Everyone who seeks perfume in his or her garden will be certain to make the most of the old-fashioned deep red clove carnation, probably the sweetest of all and the most powerful too, but July and August provide such a welter of their gorgeous blooms in such a variety of colours that it is almost impossible to particularise. Of course they have rivals,



A FINE BORDER OF JUNE-FLOWERING IRISES.

and the mention of the word "lily" will focus the attention upon another race of plants that are famous throughout the world for the vigour and distinction of their perfume. All through the summer days, from the time when the first bloom of candidum expands, right up to those cooling autumn evenings when the latest blooms of speciosum are flourishing, a procession of delightfully perfumed lilies is with us, though this probably reaches the zenith of its power in August when the wonderful auratum is carrying its immense head of giant blooms. This is essentially an outdoor flower, for, if it is cut and brought into the house, the strength of the odour is apt to prove overpowering, but, in the open air, diluted by the warm atmosphere, one's sense of smell is pleasantly tickled.

Earlier in the season the place occupied by the lily in late summer is filled by the iris, and all through May and part of June the garden that is planted with a rich store of these is painted with vivid splotches of colour, some notable for the rich depth of their brilliance, others æsthetic in their quaintness, while others are just simple delicate tones that blend and harmonise with anything and everything. It is a wise gardener, indeed, who places his chief reliance on these "selfs," leavened by a few of the more unusual and striking kinds. Almost all irises have the grace of perfume, a remark that is true both of the tuberous and bulbous rooted forms. Among the latter the Spanish varieties are pre-eminent, and one would be hard

PEONIES ARE INVALUABLE IN THE SUMMER GARDEN.

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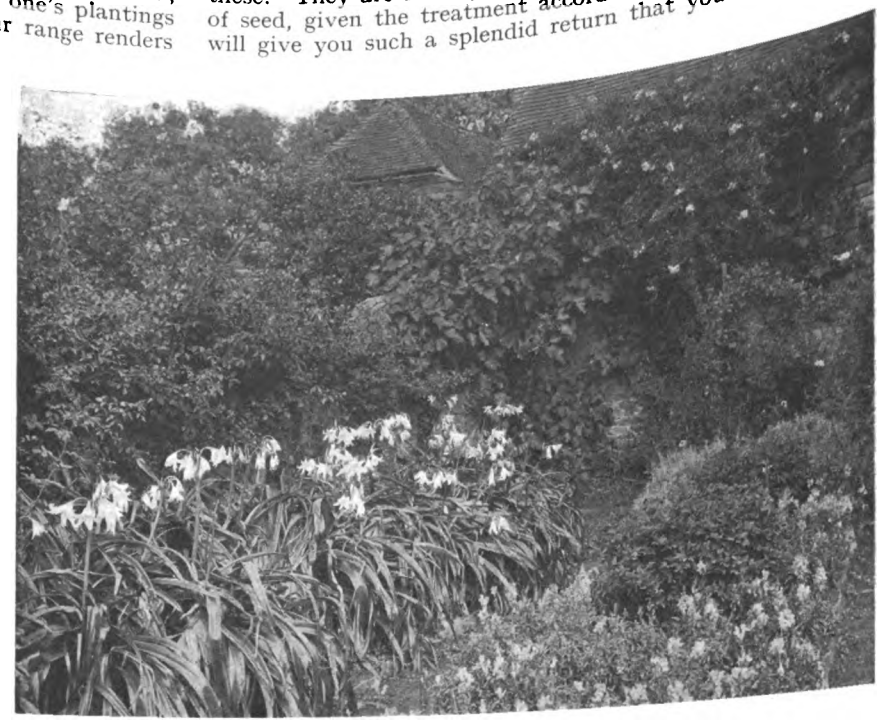
to make choice of a more beautiful race for extensive planting. They are useful alike in the large or small garden; it is only a question of adjusting the scale of one's plantings to suit the area at command, while the colour range renders it easy to choose varieties which are suitable for every conceivable requirement.

Mention has been made of the germanica section as particularly fragrant and, to these, we may add all the pallida class, while a similar label may be attached to I. florentina. The flowers of this are white slightly tinged with blue; while the falls are distinctly marked by a bright golden beard. I. Monnieri is very distinct, with handsomely formed bright golden flowers that are powerfully scented. Among the lesser known iris is sambucina, a very vigorous grower, running to 3½ft. The flowers are yellow with brownish-violet rays and veins, and a bright yellow beard, the whole strongly perfumed after the manner of the elder blossom. An old-fashioned flower, that looks like recapturing some measure of its former popularity, is the rocket. This in its best and double form rather resembles the stock, with white or deep purple flowers in early summer. These double varieties are readily increased by means of cuttings, though it will sometimes be found possible to divide older plants. Cedronella cana is worth noting as an aromatic plant that is quite effective in the borders and bears crimson purple flowers.

In late summer and autumn, the herbaceous phloxes make a display that for sheer gorgeous effect cannot be equalled, while they fill all the air with a perceptible perfume that becomes stronger and stronger as the sun becomes hotter. Indoors, where they are used as cut flowers, one is indeed aware of this, while the fragrance never becomes so strong as to be unpleasant. Especially choice for well drained and well sheltered borders are the crinums, a bold genus of lily-like plants with handsome deep green strap-like foliage and large umbels of pink or white flowers which are deliciously fragrant. These flowers are funnel-shaped and widely expanded at the mouth and no fears need be entertained as to their hardiness, over the southern half of England at any rate, while, farther north, a covering of straw is sufficient to ensure their safety on all but the coldest soils.

One does not meet the libertias so often as one could wish, but they are grand summer flowers and possess a fragrance that is all their own. There are two varieties, the dwarf and the tall, L. magellanica and L. ixoides. The former does not exceed 18ins. in height, with pure white flowers arranged in heads and packed very closely together; the latter somewhat resembles an iris in habit, reaching a height of 3ft. or 4ft. with heads of white flowers which are made more conspicuous by the mass of yellow stamens at the centre. The dwarf variety is much the better of the two and provides excellent material for cutting. For broad edgings, Calamintha alpina is a splendid subject that is useful in every way. Not only is the whole plant aromatic, but it forms a close mat of leafage and bears charming sprays of violet flowers that are in evidence through almost the entire summer. One of its chief points is that it provides an ideal setting for other flowers, a fact that is strikingly emphasised by associating with sweet williams. The soft hues of the calamintha serve to emphasise the glory and brilliance of the heads of sweet william and one procures, too, a combination of perfumes, the aromatic qualities of the calamintha with the sweetness of the sweet william heads.

Verbenas are another glory of the summer garden, and, both on the score of perfume and brilliant show, it would be very difficult indeed to discover anything that would outclass these. They are so easy to manage, too, and a mixed packet of seed, given the treatment accorded to half hardy annuals, will give you such a splendid return that your love for their



FOR WELL-SHELTERED CORNERS THE CRINUMS WITH THEIR HANDSOME FOLIAGE AND CLUSTERS OF WHITISH TO PINK FLOWERS ARE ESPECIALLY SUITABLE.

VERBENAS HAVE A CHARM ALL THEIR OWN IN THE SUMMER GARDEN.

special fragrance is likely to deepen and you will repeat the sowing year after year. Among the commoner plants, Centranthus ruber is a sturdy specimen that will begin to flower early and continue late, indeed, it is seldom that one will go to the plants during the summer months and fail to find a lavish display of the honey-scented reddish sprays that are so effective. This is just the plant for out-of-the-way places where the soil is shallow or poor in quality, for, where found as a wilding, it is generally on the steep face of a cliff, railway banks or some other similar position, and no one would be likely to complain of its flowering under these conditions.

Peonies vie with the rose in deliciously delicate fragrance, while the best varieties are not one whit inferior in the charm and delicacy of their petal formation. This is a flower that

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conquers all who love a garden, whether their love originates in admiration of beauty of form or of colour, fragrance or daintiness or any other charm that flowers can provide. Passing from their splendid size and handsome leafage to the most modest flowers, do not let us forget the violet—grown entirely outdoors and allowed to flower just when it will. By all means have your frames for winter supplies, cover some plants with a handlight, if you wish, but do not omit some well grown clumps of the finer kinds, tucked in here and there in the general borders and allowed to peep forth their delicious double and single flowers, as and when they will. It is astonishing at what varied seasons they will do this, as though to serve as a reminder that other days and other seasons are coming or have passed. In winter they are heralds of the coming spring. In summer they are lovely waifs, born out of due season and therefore commanding our respect. In autumn they are a reminder that even the fairest may be deceived and that like conditions may provoke a response when things are not what they seem. In spring they are just their own true delightful selves, brimming over with the message that now, indeed, has new life returned to the sleeping earth. Upon only one point must one be careful with these outdoor grown plants, they must be well watered and syringed or red spider will seize upon and utterly ruin them during the heat of July and August.

Another important family of plants for the lover of fragrant flowers is that of the lupins. These have provided us with many a startling surprise of recent years, so that our old friends, the typical blue and white forms (that, it must be admitted), used to shed their unopened buds rather badly, seem a very long way away. But it is quite one thing to add or mix colours and quite another to produce scent, though this is what has happened in the case of the Six Hills hybrids. These have every shade of colour that the most inventive mind could imagine, as well as a perfume that carries for some distance round the plants.

Dictamnus fraxinella makes a double appeal, for not only does the plant exude a strongly perfumed resinous oil and therefore come within the scope of our present thoughts, but it is also a very showy border plant. The height reached is between 1ft. and 2ft., so that it must not be placed too far back in the border, while it flowers in early summer in long terminal spikes of light purple flowers. It is sometimes called the Burning Bush from the fact that if a match is struck near the plant in the evening of a hot day, the gaseous vapour will take fire, but it seems to be a fact that, in this country, at any rate, we do not get sufficient warmth for this to be possible. Apart from that, however, it is a useful and showy plant that makes a great display on the margin of the shrubbery; there is also a white variety. Monarda didyma—Cambridge Scarlet—is worthy of high praise, both for its whorls of scarlet flower which make such a brilliant show in the garden and also its distinctive honey-like perfume that is not too powerful. It will literally "grow anywhere," but merits good soil, as this enables it to reach its fullest stature and thus make the most imposing display.

One must, however, conclude somewhere, and this already lengthy note may be brought to a fitting conclusion by mention of Malva moschata, the musk mallow. In this instance it is the leaves that are responsible for the famous musk odour. It loves a well drained and chalky soil and, when happy, reaches a height of 2½ft. The flower spikes, which appear in summer, are pale rose coloured and very showy, for the individual flowers of which it is composed often measure nearly 2ins. across.

H. W. CANNING-WRIGHT.

TREES OVERHANGING GARDENS

LOPPING RIGHTS AND RESPONSIBILITIES.

ADJOINING OWNERS AND OCCUPIERS

THE lopping of overhanging trees belonging to adjoining owners and occupiers is a subject upon which many words have been spoken and many friendships broken. To the most peaceable of neighbours the question has been, and no doubt will continue to be, a frequent cause of irritation and trouble. The ordinary individual knows little or nothing of the actual law in these matters, and, if acquainted with one side of the subject, fails to understand another, so that any step taken is as likely to be the wrong as the right one.

AN APPLE TREE CASE.

This was clearly demonstrated quite lately. The Plaintiff had his apple trees growing within a few feet of the boundary running between his own land and the property of the Defendant. These trees bore a popular class of apple, and the branches of the trees overhung the Defendant's land, to his great annoyance apparently, for he maintained that he was justified in taking action. But the Defendant claimed that not only could he lop off the offending branches, which he, in fact, did, but that he was further entitled to pick off the apples growing on these branches, and this he also proceeded to do. The quantity thus picked ran into some bushels, which the Defendant subsequently sold. The Plaintiff then started proceedings against him for conversion, in the County Court. The judge of that Court held that, while a nuisance may be removed, a person is not entitled in appropriating and converting to his own use or benefit that which caused the nuisance, and judgment was, therefore, given in favour of the Plaintiff.

THE HIGHEST AUTHORITY.

But the Defendant was not satisfied with this decision of law and appealed against the finding. From the judgment given in the case in the High Court some useful object lessons are to be gathered, if the important points which are relevant are carefully taken into account. Some sides of the whole question were, in fact, closely examined a good many years ago by our highest legal tribunal—the House of Lords. In the case then considered some rather large and old trees overhung the Respondent's land and had so done for more than twenty years. The Respondent gave no notice to the Appellant, and did not trespass on his property, but he cut off a number of the branches to the boundary line. It is an accepted principle of the law that a person shall not go upon the land of another to remove a nuisance, unless it be a matter of necessity, until he has taken the step of giving the other person reasonable and proper notice. The reason of this is that such an act is an interference with the soil of that other person, and this amounts to a trespass in the eyes of the law. It is true that this was a point which did not primarily emerge from the House of Lords case, where the leading question was whether or not a notice was necessary before the overhanging branches were removed. But the House of Lords decision is valuable because it settled the law that such a notice was not required. The House of Lords, however, had the further question before them as to whether or not the Appellant had acquired any right which arose from the length of time the trees had overhung the Respondent's soil. Their opinion on this point was that it was impossible to say that the Appellant had acquired a right to the land over which the trees were hanging, or to their overhanging, either under the Statute of Limitations or under the ordinary law of prescription The House of Lords took the view that if a person can manage to get rid of the interference or encroachment of overhanging branches, without committing a trespass upon his neighbour's land, or entering upon it, this act clearly can be done, and that the right can be asserted whenever it is deemed proper to exercise it, while no notice or previous communication is required in such a case. But the question was not considered, for the purposes of a decision, whether this rule was one which would necessarily apply to the cases of trees so young that the owner might remove them intact, if he chose to lift them, or to shrubs capable of being transplanted, although it was recognised that this question was worthy of examination. In the case of recent date, already mentioned, this well established case in the House of Lords was, of course, referred to.

DECISION IN RECENT CASE.

In the recent case, if it had depended upon the nuisance created by the overhanging branches, the Defendant was obviously entitled to abate this nuisance, but his right was restricted to this. It

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ance, and did not justify him in further, in this particular appropriating to himself either the offending branches when cut off, or the fruit which was on them. This was the Plaintiff's property before being severed, and the High Court held that it remained so afterwards. In deciding for the Plaintiff the Court took the view that he had the right to possession of his property, but did not indicate the means by which they thought the Plaintiff, in such a case, could have properly enforced this right, if the Defendant had, in fact, merely severed the branches and done nothing more. But the Defendant had appropriated the property to his own use by selling it, and consequently conversion arose. Had he simply cut down the branches it would appear, however, that the Plaintiff could have recovered his property by proper legal proceedings, if delivery, upon request, had been refused. As it was, the Plaintiff was entitled to the value of the property. It may be added that the Court considered the same principle applied to apples which might have fallen, or have been blown off, when they were on the Defendant's land.

A LAWYER.

THE ENEMIES OF THE STRAWBERRY

OWING to their habit of growth, strawberries are peculiarly exposed to the attacks of the various hungry enemies living in and upon the soil beneath them, as well as to damage from such foes as invade fruit trees and bushes.

Slugs, millipedes, eelworms, wireworms, and other grubs, as well as surface caterpillars, attack root, leaf and stem. Mice and frogs can approach the fruit without difficulty, while from above it is equally discernible to birds and other winged assailants. Even the flower suffers from the epicurean tastes of one marauder —the beautiful rose chafer, whose grub thrives upon the roots.

It is well if these same roots are at first numerous and healthy; for the grubs of the cockchafer, rose chafer, click beetle (better known as the true wireworm) and crane fly (leather jacket), as well as the millepede or false wireworm, will one and all find a satisfactory living upon them should these pests reach their vicinity.

Hence, if any manure or earth has to be added to the strawberry bed, it is advisable to make sure that it is free from injurious creatures—by such methods as frequent turning to expose it to the researches of the birds, the admixture of nitrate of soda and soot to make it unhealthy for intruders, or watering with a solution of salt for the same purpose.

The grubs of the cockchafer and rose chafer are much alike, the principal difference being that the rose chafer grub has a brown spot on each side of the segment or ring next its head.

THE LARVA AND ADULT OF THE ROSE CHAFER.

Both of these grubs feed upon strawberry roots. They are peculiar in shape, having a tough-skinned body, the tail end of which is permanently bent underneath it. The eggs are laid in clusters in summer, in earth or old manure heaps, and are best dealt with by digging, followed by hand-picking or birds.

The cockchafer is a heavy-looking insect with brown corrugated wings, two species of which are well known as the May bug or June bee.

The rose chafer is a handsome beetle, green above and copper coloured beneath, with a pinkish tinge. Its grub measures about 1¼ins.

The wireworm is a grub of a different calibre. As its name denotes, it is of a wiry appearance, thin in proportion to its length. It has six very small legs and is orange in tint. It is supposed by gardeners to feed on almost every kind of root, with the exception of mustard, which it cannot tolerate and which is sometimes grown and dug into the earth as a preventive against its mischievous practices. It lives from three to five years in the larval stage, then pupates and hatches into a click beetle, so called from the noise made in recovering its feet after having fallen on its back.

The millipede, or false wireworm, is not an insect and does not change its form, except to become longer and larger. Its legs are very numerous and look like hairs and it may be known by these and by its habit of coiling like a watch spring when touched.

The body of the leather jacket is softer, with a tough skin of dull brownish grey. It feeds on the roots of grass and other plants in a very destructive fashion. The eggs are laid in summer and early autumn, hatching in a couple of weeks to the grubs, which feed till the next spring or beginning of summer, when they pupate.

From June onward the pupæ, one by one, work themselves partly out of the ground and hatch into the crane that fly, we know so well as "Daddy-long-legs." As the grubs thrive in wet soil, infected areas should be well drained and, when possible, thoroughly dug over, when starlings and other birds will generally search out the grubs very thoroughly.

In dealing with grubs and millepedes the surrounding soil should be dressed with something harmless to the plant whose health is in question, and injurious to the foes likely to attack it. Among these remedies lime, or nitrate of soda, and soot may be used with care, or land may be prepared for planting by using stronger applications. If large quantities of Vaporite be used some months must elapse before planting is safe.

The leaves of the strawberry suffer from the onslaughts of a variety of foes. Among these slugs are very prominent. The habits of these unassuming but voracious pests are largely nocturnal and a good addition to any remedial measures will be to examine the beds after nightfall, with the help of a torch, and the accompaniment of a pail of insecticide wherein to drop the bodies of the intruders. Soot and lime left on the surface round and between the plants are most useful, but the straw which is placed between the rows before the fruiting season forms a dangerous harbourage for these little foes and one difficult to keep free from them.

The strawberry snail (Helia rufescens), is another insidious enemy which also feeds upon the iris and violet and may infect the strawberry from such sources. The egg of rufescens should be sought in late autumn and may probably be found beneath the surface of the soil.

Many strawberry leaves are dappled with brown spots, which are the work of the fungus Sphærella fragaria. In mild attacks this does not greatly affect the fruit-bearing capacity of the plant, but in the autumn it is better to clear away all dead leaves, cutting off those affected; also to examine

LEAF SPOTS CAUSED BY SPHÆRELLA FRAGARIA.

the plants in spring to see that they are practically clear.

For strawberry mildew (Sphærotheca castagnei Humuli), which is white and attacks the under surface of the leaves, causing them to curl, a fungicide should be applied before the fruit is formed, if the condition be recognised early enough, both to save the possibility of the fungus attacking the fruit and to guard against any danger from poisonous applications.

Sulphide of potassium in the proportion of about two teaspoonfuls of the powder to a gallon of water is a useful fungicide needing careful mixing, using a small quantity of water at first, with the remainder added by degrees or the powder may float on the surface.

Leaf and stem are sometimes infested by eelworms of several species which injure the health of the plant, and sometimes cause the disease known as "cauliflower," a thickening and amalgamation of stem, leaf and flower, only to be met by consignment to the fire of the plant (or at least the part) affected. The length of the eelworm is but a twenty-fifth of an inch or under; its presence being judged by abnormal growth of leaf or flower buds. The infection for this pest is from the soil and remedies are the same as for grubs.

The blossoms of all outdoor fruit undergo some uncertainty as to whether they will be able to escape accident and damage from frost, but some, the strawberry among them, are subject to another mischance, the ravages of certain insects which have acquired a taste for their stamens. The rose chafer acts as a burglar to the strawberry blossom, robbing it of the anthers

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on which its fertilisation depends, and leaving its fructification to chance and the roving bee.

The fruit itself is eagerly sought by birds, but very largely to allay their thirst. If owners of strawberry beds will have flower-pot saucers filled with water constantly renewed, placed either among the fruiting plants, or very near them and plainly to be seen, they will find it makes a very great difference to the loss of fruit through birds, as it is often thirst and not hunger which occasions their depredations.

Mice are troublesome sometimes, but chiefly in eating off the achenes, or seeds, which decorate the outside of the fruit. Cats and traps are, naturally, the remedies for such raids; but, unfortunately, the ground beetle Harpalus has the same habit and is not so easily dealt with. For it, jars may be sunk in the earth and filled with sugared water in which a few small pieces of meat are floating. It should, however, be remembered that the ground beetle lives on caterpillars and other insects and so should not be disturbed unless really troublesome.

If the plants are not properly supplied with straw, millipedes may attack the fruit, eat out a hollow, and curl themselves inside, a most objectionable proceeding. M. L. BROOKE.

NOTES FROM CONTRIBUTORS

PRUNUS SUBHIRTELLA AUTUMNALIS

A VERY delightful and perfectly hardy plant is the so-called autumn-flowering cherry, with its wealth of pink, semi-double flowers. As a rule it is a much branched bush anywhere from 8ft. to 15ft. tall, with slender, ascending, wide-spreading branches; occasionally it is a small tree. In the park at the old eighth century capital of Nara in Japan I have a note of a tree 20ft. tall, with spreading branches and a well developed trunk 2ft. in girth, which in the early days of December, 1914, was gay with flowers. But the plant does not always flower in the autumn. Sometimes it flowers in the spring, and is then called in Japan the Yaye-higan—that is, the double-flowered spring cherry. The more usual name applied to it, however, Jugatsu-zakura, which means the tenth month (October) flowering cherry. From what I learned from Japanese horticulturists, it is apparent that when this cherry is well covered with flowers in the spring the flowers are few in the autumn and *vice versa*. It is evidently a very precocious plant that does not obey the ordinary rules as applied to flowering seasons. With its elegant habit and wealth of charming pink blossoms it is truly a delightful plant. Since its own flowers are semi-double the autumn cherry rarely produces fruit, but it may be propagated from cuttings and also by grafting on seedlings of the rosebud cherry (Prunus subhirtella pendula).

A comparatively recent comer to Western gardens, it has been long cultivated in Japan, where the accompanying photograph was taken in the spring of 1914.—E. H. WILSON, *Arnold Arboretum, Harvard University*.

A DOUBLE FLOWERED CHERRY FROM JAPAN.

CLIVIAS.

THESE evergreen flowering plants appear to be increasing in popularity every year, and, like the vallota, this is probably due to the fact that when not in bloom they possess a certain value for indoor decoration. Those who grow clivias know very well that they are not over particular as to quality of soil, but they do best when treated in a generous fashion, and, given a compost of fibrous loam and leaf-mould with charcoal added, they will go—and are often allowed to go—years without being re-potted. It is unwise, however, not to shift them occasionally, as if left too long separation, or division of the roots, becomes well nigh impossible. With the advent of February they commence to grow and bloom, and from May onwards until early autumn, it is scarcely possible to give them too much water. Clivias will give a good account of themselves in any temperate house, and really require nothing in the way of heat, beyond being kept from frost. The first flowers, which usually open early in February, are paler in colour than those which appear a month or so later, the reason being that sun has an effect on the intensity of tint in subsequent blossoms. Of the three species—nobilis, Gardeni and miniata—the last seems to be still as popular as any; certainly it is more often seen, but we have numerous hybrids, some of which are very charming. Where it is desired to increase the stock of clivias, it is best done, I find, by off-shoots or division—more readily, indeed, than by the slow method of raising plants from seed, hence the advisability not to permit plants to become conglomerated at the roots, which spells trouble sooner or later.—W. LINDERS LEA.

ŒNOTHERA MARGINATA.

NOMINALLY an easy plant to cultivate, there is yet a wonderful diversity of experience respecting this inexpressibly beautiful flower. It has ways of its own, foibles we are apt to call them, but it is far from easy to discover what they are and how to humour them. Some appear to experience no difficulty with the plant, others find it short-lived; some think it easy in its demands, and others are of opinion that it is rather too delicate for our climatic conditions. But Œ. marginata is such a lovely flower and has such transcendent attractions that there are few who see it who are not eager to possess it.

What the end may be it is difficult to tell, even if the most approved methods are followed in its treatment. The writer has known many plants of this exquisite Evening Primrose in many gardens, and has grown not a few himself, but, in the long run, he has come to the conclusion that it is not usually a long-liver unless it can be left greatly to its own devices and allowed to send out its suckers to find "fresh fields and pastures new," and thus keep itself vigorous and robust. When such giants among plantsmen as the late Mr. Reginald Farrer have written it down as "delicate," one may venture to say this much at least. The finest plant I ever had was growing at the base of a sunny part of the rock garden, and was bounded on the south-west by a very narrow gravel path. This plant flourished admirably and flowered well for some years, and then started to send out suckers to the other side of the narrow path. This seemed to afford an excellent opportunity for propagation, so the suckers were taken off and planted in pots. The following spring the old plant had disappeared, dying, probably, from exhaustion. The methods of propagation, by means of the suckers and cuttings, are quite good; but if the former plan is accompanied by the loss of a fine mature plant, one cannot but regret the result. A good plant is of rare beauty, with its handsome leaves, its low, trailing growth and its wondrous, lustrous white flowers of great size and marvellous charm. The blooms open in the afternoon with virgin purity and gradually change in colour, remaining open all night and appearing in the morning a delicate rose colour, but shorn of their loveliness of the evening before. Undoubtedly, a light, sandy soil is best for this delightful evening primrose, and I consider that it should be made rather firm and that some porous stones should be about its roots as well.

A flower of such gracious beauty is well worth any effort to cultivate successfully, and even its possession for a year or two will leave a fragrant memory which will linger with us for many years.—S. ARNOTT.

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SIMPLE GARDENING

COLD FRAMES IN SUMMER.

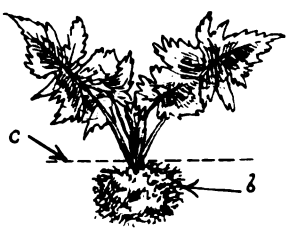
THESE may be regarded as miniature greenhouses by those persons interested in plants generally but who do not possess a real greenhouse. Those who enjoy the latter usually make good use of the garden frame too. The cold frame may be looked upon as the feeder of the greenhouse, as the small streams are protected which act as feeders of our canals. Personally, I always enjoy growing such plants as primulas, cyclamen, cinerarias and calceolarias in a frame or frames placed to face due north during the summer months. For the benefit of these and other plants that like cool conditions, a nice bed of old, clean ashes is essential. When a cold frame faces due north with the high back to the south, there is not the same need for shading as when the frame faces south. The plants really have more light in the north aspect because the glass lights need not be heavily shaded on the hottest days. Now, as to placing the plants in the frames. The calceolarias should be right at the back, where least sunshine penetrates, but all the other kinds should be equally disposed in rows from front to back—to the calceolarias if the latter are grown. If plants are not grown, then some vegetables and salads may be cultivated, the foremost being frame cucumbers. A novice should try a few plants of ridge cucumbers in a cold frame, as it is wonderful how well they succeed in it. Make a narrow pit along the front of a frame, inside, fill with good compost, firm it and plant several tomatoes, training them to long stakes 1ft. from the ground. Very good crops may be grown. Fill the cold frames in summer. Do not allow them to remain empty and, probably, harbouring weeds.

OVERCROWDING PLANTS: OVER-CROPPING FRUITS.

We often err in leaving too many plants in pots, pans or borders, or too many fruits on the branches, because we have them and do not like to lose any. This happens even when we know that the results will be unsatisfactory. A noted grape-grower, in long ago days, said he could never bring himself to the decision to thin out adequately both bunches and berries without a struggle with his feelings. "The best thing to do," he said, "is to bring in one of the labourers and tell him to cut out so many bunches, and then leave him to the task," but even this course required courage, which he did not possess. Probably annuals are left by us generally in the most overcrowded state of any plants in our gardens. Sweet peas, culinary peas, beans and root crops come a close second. If we thin out while the plants are small, we do the right thing and rarely miss them, whereas if they are left to form a jungle, we do not know which are the best to leave, and the best of them at this advanced stage are poor, rendered so by undue overcrowding. In our greenhouse we may have two hundred plants, but there is, really, only proper space for one hundred, which, if given fair play, would make the bravest display in the end. The properly thinned bunch of grapes looks rather a poor specimen, but in a month's time it is splendid. It is not often that we trouble about thinning out our hardy fruits, but it sometimes proves very beneficial. We should, when reducing numbers, realise in our minds what the fully grown specimens should be like.

PROPAGATING DOUBLE-FLOWERED PRIMULAS.

The Chinese double-flowered variety is still grown in many gardens where pure white flowers are required over a long period for nosegays in winter and spring, and pyramids of snowy blossom, rising from a cushion-like base, are appreciated in the warm greenhouse.



But I find that numerous new cultivators are at a loss as to how they should treat the old plants when the flowering stage is past—in June. Seeds are not sown, but layers are rooted almost after the way of layers of border carnations. The old plants should be placed in a cold frame on a bed of ashes, preferably in a frame facing due north, or in one on the north side of a wall or fence. Sufficient water should be given just to maintain the freshness of the leaves, not more. Very carefully clear away any faded basal leaf-stalks and weeds. Then mix sandy loam, leaf-soil and sand in equal quantities and fill up the pot with the compost, piling it high enough to bury the base of the side shoots and lower part of the parent plant. Do not destroy any side shoots at the base when cleaning old plants. Cover the new soil with green moss and maintain the latter in a moist state. When the side shoots possess roots, detach them and pot into small pots, then shift to larger ones in due course, adding a little dried cow-dung to the compost. The letters *a*, *a*, point to the young basal side shoots; *b*, rooted side shoot; dotted line *c*, depth to pot.

AUBRIETIAS, PRIMROSES, VIOLAS.

The aubrietias have, in particular, been very beautiful this year and delighted the hearts of rock gardeners especially. Some amateur cultivators think the only means of increasing the number of plants is by division or the insertion of cuttings. Of course, the neat division of nice fresh clumps is a good way, and succeeds, but seeds may also be sown now and a good batch of healthy young plants secured in time for planting in due season. The aubrietia will grow in any rockery position, but best in one facing south, east or west, although the colours of flowers in northern aspects are generally very deep. The seeds should be sown in pans or pots in preference to boxes, filled with a good open compost. Although the plants will grow in any ordinary garden soil, for the benefit of the seedlings I like to add some tiny lumps of old mortar and some pounded bricks, also old ones. The drainage should be sound, as the young plants do not thrive in a sour soil. The seeds are small, so it is advisable to prepare a level, smooth surface, to scatter the seeds thinly and barely cover them, but press the surface a little to embed them into the soil. Cover with glass and paper and keep the seed vessel out of the direct rays of the sun for a time. Primrose seeds should be sown just the same as those of the polyanthus, and the resultant seedlings should be transplanted at an early stage in a cool, prepared bed. At this season I like such beds better than dry boxes. We all know how lovely violas are, especially those of choice strains. It is to these I now refer. Turn an ordinary garden frame towards the north, make up a nice bed of loam in it, sow the seeds thinly in shallow drills and do not shade, let in all the north light and treat the young plants well. GEORGE GARNER.

Presentation to the Rt. Hon. Sir Herbert Maxwell.—At a dinner given in honour of Sir Herbert Maxwell, Lord Lieutenant of Wigtownshire, at Newton Stewart, on the 16th ult., the occasion was taken to offer him tokens of esteem and affectionate regard from every corner of Galloway. As our readers know, it is given to few gardeners to "ruminate in print," so gracefully, and withal to such practical effect, as Sir Herbert Maxwell. His writings are the outcome of a gardening experience extending over more than half a century, and though the climate of his ancestral home on the shores of Luce Bay is so mild and humid as to enable Sir Herbert to grow many sub-tropical plants, denied to less fortunate folk, the latter can seldom read what Sir Herbert has to say about his garden and the many friends in it without deriving therefrom something of practical instruction as well as much refreshment for the mind.

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NAMING OF NEW ROSES

[The following has been sent in by a correspondent and is a translation of an article in the French publication, *Les Amis des Roses* (the official journal of the French Rose Society).—ED.]

WE are pleased to inform our readers of an interesting communication which we have received from Mr. Nicolas, the sympathetic secretary of the American Rose Society. We take this opportunity of expressing our sympathy to this American society, and offer our best wishes for its prosperity. Furthermore, we recommend our members themselves to become adherents of this grouping. (See our reports.)

The aims of the Registration Service of the American Rose Society are :

1. To prevent the use of a name already given to a preceding rose.
2. To simplify names and avoid superfluous titles.

We cannot do better than quote Mr. Nicolas :

" As the name of a rose cannot be patented, our service makes up for this deficiency. Naturally, we have no legal authority to prevent a grower from naming a rose as he likes, but he could not take part in the competitions and exhibitions organised by the A.R.S.

" When a name is put before us, we immediately advise your Society, and the National Rose Society of England, as well as the Australian Society and the Nos Jugunt Rosae of the Pays-Bas. A period of three months is allowed to make the necessary investigations.

" The recent regrettable confusions demonstrate the necessity for an *entente*. Nowadays the rose is international, and needs to be protected. In fact, when two flowers bear the same name, they cannot enjoy a great popularity by reason of the inevitable confusion. Buyers hold back because they fear they will receive a yellow rose when they want a red one, or *vice versa*.

" Another aim of the A.R.S. service is the adoption of names which are as simple and short as possible and easily pronounced in all languages. Names which are too long are an obstacle to the popularity of the rose. It is thus that those two remarkable roses from all points of view, Souvenir de Claudius et de Georges Pernet, are known here under the names of C. and G. Pernet.

" As to that equally interesting variety, Souvenir du Capitaine Fernand Japy, it will be difficult for this to penetrate into America solely on account of its long name."

The Société Français des Rosieristes can but associate itself with this request. The Society will be pleased to give the American Rose Society all possible information when the occasion arises. In acting thus we shall serve a double end : we can in this way express our friendship for the United States, and we can equally render a service to professional rosarians by drawing their attention to the need for brief and concise names.

BOOK REVIEWS

THE publication of the fifth edition of the third volume of Schlich's " Manual of Forestry " (Schlich's " Manual of Forestry," Vol. III. Forest Management, including Mensuration and Valuation, by Sir Wm. Schlich, F.R.S. Fifth edition, viii + 383 pages. London, Bradbury, Agnew and Co., 1925. Price 20s.), is a sure indication of the merits of the book, and of the importance of the subjects treated, which comprise Mensuration, Valuation and Management. The text has been in a great measure rewritten, and a considerable amount of new matter has been added. The production of the new edition has been no easy task, and Sir William Schlich must be congratulated on his crowning effort of a long life spent, first in the interests of Indian and later of British forestry. The book is a wonderful achievement for a man of eighty-five years of age.

This particular volume of the " Manual of Forestry " has been often considered too difficult for the ordinary landowner or the working forester to grasp and master ; and no doubt the array of numerous formulæ, graphs and tables, have a deterrent look. Nevertheless, the mathematics involved are not of a very advanced character, and the technical terms employed are readily understood. All arts and trades which involve money value, compound interest, exact measures of products, and the like, do necessitate the use of applied mathematics, and the owner of woodlands and the skilled forester cannot ignore this study, except at the risk of financial loss. It must be remembered that an accurate knowledge of the volume of growing timber, its location, and its rate of production, is essential if a forest property is to be managed by ordinary business methods.

The first part of the book, Forest Mensuration, deals with the determination (to a fair degree of accuracy), of the dimensions, volume and rate of growth of single trees, and of woods and sample plots. Various methods of measuring standing and felled timber are described, and illustrations are given of the instruments that are used in this work. Particularly noteworthy is the section treating of the measurement of growing woods. The latest methods are included, such as the volume-curve method, Block's method of forming groups, the form-quotient or Swedish method, and the method used by the British Forestry Commissioners in connection with permanent sample plots. The preparation of yield tables for different trees is carefully explained. Yield tables have, up to the present, been compiled only for the more important species, and give the volume and number of trees per acre, their height and diameter, thinnings, rate of growth, etc., for different ages from youth to maturity, and for different classes of soil. Formerly we were dependent on German yield tables, but the Forestry Commission has begun to study the conditions of tree growth in the climate of these islands, and has already published yield tables for European larch, Scots pine and European spruce, which are based on measurements taken in a large number of adequately stocked sample plots situated all over Great Britain. Yield tables are necessary in all countries, where systematic management of forests is aimed at.

Part II is devoted to Forest Valuation, and is mainly actuarial, showing how the financial results of forestry may be determined. This part has been entirely re-written, and is up-to-date, the examples being taken from British money tables. These are calculated on the basis of the measurements recorded in Forestry Commission Bulletin No. 3.

The third part of the volume deals with increment, rotation, age classes, normal stock and normal yield. These are important subjects to study in the case of a large forest property, where the main object is economic and what is known as " sustained yield," is desirable. By this term is meant that the amount of timber felled each year is equal or approximately equal. This ensures a constant market, and secures to the owner a steady annual income. It affords constant employment year after year to a regular number of workmen, who can be properly instructed. The importance of these chapters in the book to officers administrating state-owned forests, is evident.

The fourth part of the book is concerned with the preparation of forest working plans, which are essential for the proper management of all woodland estates and large forest properties. This part has been greatly improved and enlarged in the present edition. The volume concludes with six appendices, of which three are tables of round and quarter-girth measurements and of compound interest. Appendix IV gives abstracts from British and Continental yield tables. Appendices V and VI are examples of two working plans. —A. HENRY.

ONE need not be deeply versed in mycology to enjoy the story of those strange plants, the fungi, as presented in this attractive volume, " The Romance of the Fungus World," by R. T. and F. W. Rolfe (Chapman and Hall, 12s. 6d.), for the " fungi " of which the authors have most to say are just those common, yet curious, vegetables, of various forms and dyes, which, in meadow and in woodland, spring up in a night and which from childhood days one has grown accustomed to call by certain names, conscious often, if not always, of a passing shiver or a loathsome feeling. Think of toadstool or puddockstool ; and has not " fungus " itself an evil smell about it ? Whether it be the philology of these names and others, such as morel, mushroom and truffle, or the gastronomic value of the articles they represent, of which we wish to learn, we shall find something to help us within the pages of the book. In a few chapters which make interesting and pleasant reading, dealing with what may be called fungus-lore, the authors have brought together many literary and historical references from sources that are seldom quoted in the general run of mycological works. From early superstitions concerning " fairy rings " and " witches' brooms," we are introduced to the more modern but equally mythical mushrooms of the moon, monstrous coralline growths, possessing strange properties.

Fascinating as the mushroom of romance may be, it must give place to the mushroom in reality, and from the fungus of legend the authors pass to consider the fungus as it actually exists, its structure, mode of life and its place in the realm of nature ; and to these aspects of their theme they devote the greater part of the volume. The characteristic family features of the larger British fungi are clearly and concisely given, together with appropriate text-figures. The physiology of the group, so different from ordinary green plants, is also discussed, since it gives the fungi a very special place in the general economy of things. As disease producers, both in plants and animals, not excluding man himself, they are responsible for much damage ; nor do they leave alone the works of man. Yet the fungi are not without their uses. In medicine and in industry they play their part, while as food plants they deserve more attention than they have received, at least in this country. In France, Germany, Italy and Japan, as well as in other countries, the mushroom trade is officially recognised, and in certain districts it amounts to a considerable and profitable industry.

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WHEN PLANNING A GARDEN CAREFUL CONSIDERATION SHOULD ALWAYS BE GIVEN TO THE CLOTHING OF ENTRANCE PIERS AND WALLS. RAMBLING ROSES ARE HERE UTILISED FOR THE PURPOSE WITH THE BEST NATURAL EFFECTS.

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CURRENT WORK in the HERBACEOUS BORDER

THE advent of June usually shows the early summer border at its best, and the climatic conditions this year and last have been such that a particularly good display may be found in most gardens. The success of these borders should by no means encourage the gardener to rest on his laurels, however, with regard to the main display which will come in July, August and September.

These later borders should be kept scrupulously clear of weeds, for almost all herbaceous plants are gross feeders, and

THE BROAD DRIFT OF BLOOM IN A SUMMER BORDER.

the best made of borders will scarcely find adequate nourishment for plants and weeds. Small grass weeds, uprooted last month and left to shrivel on the surface, will be found to have formed fresh roots, and unless these weeds are promptly dealt with several barrow loads will have to be removed where one or two emptyings of a fair sized trug should suffice. Do not look at the consequences of neglect solely from the point of view of wasted labour, on the " stitch in time " principle, but stop to consider the plant food of which the neglected border has been robbed. Good gardeners, working on light and hungry soils and not content with the natural garniture of weeds usually to be found in late autumn in the kitchen garden, sow a catch-crop to use up, as far as possible, the feeding elements ready for immediate digestion, so that, the leaching rains of winter past, these available plant foods may be restored to the ground simply by digging in the catch-crop. The value of the process consists entirely in the restoration of the nitrates and other essential soil ingredients by burying the crop of otherwise uneconomic material; judge then of the loss which is likely to accrue to a permanent border if an equal or greater bulk of vegetation is removed altogether.

Beyond early and careful weeding, current work in the border will consist of staking, hoeing, feeding, the combating of insect and fungoid pests, and, if necessary, mulching. Staking, when it becomes due, is urgent. Very few people like to see a forest of stakes towering above the plants (some dahlia enthusiasts seem to be an exception to the rule !), but a delphinium, for instance, once it starts to " run " to flower, may extend anything from 1ft. to 2ft. in a single week. The gardener with the seeing eye will know just when this rapid extension is due, and will place his stakes in position at the appropriate moment. In the case of a reasonably sheltered border, stout bamboo canes, 4ft. tall, will be ample to stay even really well grown delphiniums, but in exposed situations, strong hardwood stakes, at least 6ft. tall, will be called for. The hollyhock, as usually grown, requires similar support, while many of the taller mulleins (verbascum), are self-supporting, unless, indeed, the plants are spindly through over-thick planting. That these stakes should be so inserted that they will be as inconspicuous as possible when growth is completed, goes without saying; and this, in practice, usually means placing the stake *behind* the plant to be secured, but where damage, when it occurs, always follows wind from some particular quarter, the stakes should be placed to windward, and pains be taken to conceal them, as growth takes place, by training shoots to mask them.

The staking of plants of slighter growth requires a little more subtlety of thought than many otherwise good gardeners appear to possess. Delphiniums of the Belladonna set look truly pitiable when carefully trained up formal stakes, and such kinds as Erigeron speciosum, though stouter in growth, look little better when forced to grow erect. The erigeron is an untidy plant and any attempt to make it imitate the smug " maximum daisies " is foredoomed to failure. Let us, rather, grow it in bold drifts, using short, rather stout hazel or maple brash partially to support the plants farthest from the eye, leaving those towards the front of the border to tumble at will over pinks, alyssum or other spring flowers which may form a front edging. Some plants, such as the single and double forms of Gypsophila paniculata, may be sustained satisfactorily on the " bundling " principle—that is, by the use of one stick towards the centre of the plant and encompassing strings at intervals, but care must be taken not to secure the growths for too great a distance from the ground. In the case of phloxes, which have had the growths suitably thinned, a fairly slender stake to each spike is a not unreasonable proposition, and Michaelmas daisies, grown on the now favoured single-stem principle, will receive the same treatment. As a general rule, however, the staking of plants in the front half of the border may be most satisfactorily arranged by the free use of feathered brash of the kind we commonly use for annual climbers, such as the sweet pea. The light tips of these feathered stakes will come in useful, equally with the stouter bases, and very little raffia should be required. Where tying is necessary, the material used should be soft in texture and be twisted several times, so that stems may expand without being constricted or even severed by the tie. This is particularly necessary with stout-growing kinds, such as the delphinium.

The day is not far distant when the use of the hoe in the herbaceous border will become impracticable for this season; until that day arrives, use this essential tool very freely, striving always to get a fine surface tilth which, while aerating the soil, will help, later on, to retain soil moisture. Should a dry spell threaten, a mulch of more than half-decayed manure, or even of rough leaf-mould or lawn clippings will prove beneficial,

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and in any case, its use can do no harm. The delphinium, in particular, appreciates frequent dressings of "fat" material, from which the nourishment will percolate to the roots.

A border thoroughly well made within the last three years should produce a wealth of blossom without summer feeding, but the grosser kinds, particularly phloxes and delphiniums, repay attention, and occasional doses of weak solutions of sheep or hen manure, or of soot water, help very considerably. These should, if possible, be applied after soaking rain, otherwise a preliminary soaking with rain-water, or its equivalent, is necessary.

The sprayer will be in fairly constant use now in the rose garden and any aphides on herbaceous plants should present little difficulty. The fortnightly use of Burgundy mixture or a special fungicide, is necessary in many districts if hollyhocks are to be successful, and Burgundy mixture is also reasonably effective against mildew on the delphinium. The only sure preventive of this, however, is to shun, or, if necessary, discard varieties subject to this plague. Diseased growths of most herbaceous plants should be removed forthwith, before the mischief can spread. These should be burned so that there is no chance of infection to other plants. R. V. G. W.

STAR AND MIGNON DAHLIAS

AMONG DECORATIVE FLOWERS, THE DAHLIAS, MORE ESPECIALLY THE STAR AND MIGNON FORMS, STAND OUT AS PRE-EMINENT FOR USE IN BEDS AND BORDERS. WITH THEIR LONG PERIOD OF BLOOMING AND BRIGHT WARM COLOURINGS THEY ARE INVALUABLE.

DURING the last few years great progress has been made in the cultivation of dahlias. All the older varieties have been improved upon and new varieties have made their appearance. Among the latter are two forms of outstanding merit in the progress of horticulture, the star and mignon dahlias. Their peculiarities are quite distinct, inasmuch as the star dahlias attain a height of 4ft. generally and the mignon dahlias only 18ins., but they both share the same distinction of being something different from other kinds.

The star dahlia was raised and first introduced by Messrs. J. Cheal and Sons, Limited, and the first variety was known as Crawley Star. The flower is a fine clear pink. This was the forerunner of a collection which has rapidly become popular, and is well worth growing in every garden. They are very free-flowering and carry their blooms on long, stiff stems, which make them very useful as cut flowers for house decoration.

The star dahlias are more self-supporting than the large-flowered varieties. Three 4ft. canes are adequate support in the most exposed places, and one cane in the centre in sheltered positions. They have also another asset, they do not encourage earwigs, which have always been a drawback in the good cultivation of the older varieties. The varieties are now too numerous to be detailed. Each variety has been chosen for its distinct colouring and shape of flower, also for the good form and habit of the plant. The selection that now exists affords a wide choice for every taste.

Some of the varieties of outstanding merit are Haslemere Star, introduced in 1924, which has very clear rose pink flowers borne on long, stiff stems. This variety has been recommended for trial at Wisley.

Horsham Star is another 1924 introduction with coppery rose-coloured flowers turning to mauve in the centre, which produces a very pleasant effect.

STAR DAHLIAS AT MUNSTEAD WOOD.

Some of the earlier varieties are Bronze Star, which is true to its name, the flowers are a rich bronze, turning darker towards the centre; Cuckfield Star, yellow with a pleasing tint of pink; Primrose Star, a fine clear primrose yellow, the flowers produced in great profusion; Southern Star produces a charming colour scheme of crimson, apricot and purple; White Star, a lovely pure white, the petals conspicuously shown off by orange-coloured stamens; Yellow Star, a delightful yellow, which has become popular owing to its clear colouring.

The mignon dahlias are absolutely a class on their own, and, as their name signifies, their dwarf nature, their usefulness as bedding plants or for the edging of borders is unique. They are not fastidious as to soil, and do not require any stakes for support. The most important point in their culture is to keep the old flower-stalks picked off. Failing this, they soon cease to flower. There is a wide range of colour among the numerous varieties, and it is difficult to choose between them. Some of the favourites are Albion, pure white; Benbow, crimson; the well known Coltness Gem, crimson-scarlet; Daphne, maroon; Dazzler, a fine orange-scarlet; Janet, bright orange; Kathleen, a deep apricot; Louise, delicate primrose, very effective and very popular.

The star and mignon dahlias require the same treatment as other varieties. They should be planted out about the first week in June. A little soot or lime put round each plant as a protection against slugs is advisable, also liberal watering and syringing after a hot day will help the plants during the growing season. On light soils mulching will be beneficial in dry weather. The star dahlias should be planted from 3ft. to 4ft. apart and the mignons from 15ins. to 18ins. Neither of these varieties require thinning or pinching, and both provide an excellent splash of colour in the later months of the year. R. C. J.

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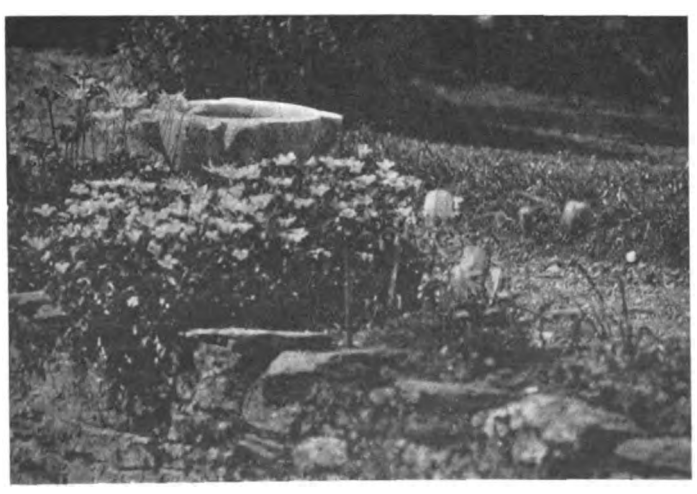
MY ROCK WALL

A GARDENER S PLAYTHING

MOST gardeners have some little corner of the garden which they regard rather in the light of a toy. For some it is a little rock garden, for others a small pond. The object of such a corner is to have a place on which to waste a lot of time and lavish any amount of care. The result is usually something very fascinating. Each plant takes on a personality of its own and is on very intimate terms with the gardener, who must, of course, be an amateur, no professional gardener could possibly afford the time involved to cherish and fuss all the little plants.

My little corner is a rock wall. It is only some 15ft. long and rather more than a foot wide. It runs along a little path by the side of the lawn and is only raised a few inches above the path on this side, but on the other there is a drop of from 1½ft. to some 3ft. to the drive, which slopes rather steeply downwards. My wall is made of flat country stone roughly cemented together with mortar. Along the top of the wall a shallow trench but a few inches deep is left, edged with stone and filled with good sifted soil. The drainage is thus perfect, and most of the common rock plants revel in their quarters and flourish amazingly. I have nothing uncommon or rare on my wall, and yet there is always something of interest on it. It is my endeavour to keep it gay with flowers from end to end from early spring to latest autumn. "How is this possible in so restricted a space?" you will ask. The method is very simple. Certain plants which dislike being moved have to remain on my wall all the year round, and do their best to beautify it with their graceful foliage or neat habit of growth. Others flower and are then carefully removed, and something else is popped into their place. It is really a most amusing game. The earliest flowers of all are those on the neat little cushions of Saxifraga apiculata, which have been a continual joy to me throughout the winter. The buds appear early in February, and by the end of the month the small green mounds look quite gay studded with their yellow flowers. Following closely on their heels a few chionodoxas and scillas open their little blue bells. Then a common little pink mossy saxifrage ventures out. But in the meantime the soil has been stirring at the other end of the wall and the little dark red leaves of the Apennine anemone can be observed pushing through with the buds pointing downwards and almost indistinguishable from them. Before you can turn round these have grown up into a bold clump with a show of lovely blue flowers. This encourages Saxifraga Wallacei to come into bloom, contrasting well with the blue of the anemone, which, alas! is already on the wane. This brings us to the first of May and the fritillaries have opened their snaky heads. Saxifraga apiculata has now been removed to summer quarters, and a charming little pink daisy, Dresden China, in full bloom, has filled the vacant niche on my wall. For weeks the buds of Gentiana acaulis have been slowly forming, protected by a little penthouse made from a couple of old half-plates, for this plant dislikes the continual rains of our English winters. It is a long time to wait for the first streak of colour to develop into the wonderful blue cups, reminding me of the Alps, where it grows so luxuriantly on apparently nothing but stones.



THE WALL IN EARLY SPRING, WITH SAXIFRAGA WALLACEI AND THE APENNINE ANEMONE.

SEMPERVIVUMS NESTLING AMONG THE CRAGS IN THE ANNEXE.

Next come two or three saxifrages of the London pride group, but not the London pride itself, as this is far too vigorous for my wall. These are the dainty little plants cuneifolia, primuloides and umbrosa minor. Quite common things, but each one with its own charm and grace. So many rock gardeners scorn to grow such common things, but I never could understand why. A lovely great hummock of thrift is now thrusting out its dark pink buds. No doubt its tap root has gone right down through the stones of my wall. After the saxifrages have had their day the campanula family carries on towards midsummer, when those lovers of the sun, the rock roses, give me a brave splash of colour. Only single ones are allowed on my wall, rather unruly members, they are inclined to want all the room for themselves, ousting the other plants growing near them. They have to be placed near a mossy mound of Saxifraga serratifolia, which is quite capable of looking after itself. They are useful, however, for their foliage remains throughout the winter to clothe the wall.

The year is brought to a close by the stonecrops, of which several fill in odd corners. Sedum elegans with its nice reddish foliage is a particular favourite of mine. It looks well all the year round and best when it throws up its yellow flowers, which contrast so well with the leaves. It has a very charming way of popping up between the stones where you least expect to see it. In the gap left by Anemone apennina, when this has died away, a seedling viola of some choice colour will go on flowering into the late autumn.

My wall has a continuation, a sort of annexe, on which the houseleeks in great variety fill the spaces between the granite and glistening quartz peaks. When grown like this they provide one with a source of interest which is never ending. Here are to be found those with the silky white threads spread from point to point of the little rosettes like a spider's web. It is a matter of common observation that this web is much more pronounced on the new growth in early summer. It is produced by the plant as a shield to ward off the intense heat of the alpine sun which might otherwise damage the tender young leaves. Here are also to be found quite sturdy rosettes of a glaucous green with pretty reddish brown tips, medium-sized rosettes, with the leaves beautifully curved outwards and those with the leaves tightly pressed together to form a compact ball—in fact, forms of almost infinite variety and colour. It is difficult to credit that they are all cousins of our common houseleek.

One of these sempervivums is sufficiently interesting to call for special mention. This usually goes by the name of "hen and chickens," from its habit of throwing off minute rotund rosettes which roll away from the parent plant to form

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the nucleus of a new cluster elsewhere, the future generation looking after itself in a most independent manner. In such quarters as my wall affords these plants are only too ready to throw up flower-spikes terminating in a cluster of dull pinkish stars, which are all very similar and to me uninteresting. They are produced, however, in rather a fascinating manner. One of the rosettes of a group slowly lengthens out until the stem is formed, the leaves of the rosette going to clothe this stem. Buds then make their appearance at the top, which duly open and then die away. But now comes the tragedy. Where the flower was is now a dead rosette. When this is removed a nasty gap is left in the neat cluster, requiring time to heal the wound.

Though my walls are made of flat country stone, just because it happened to be there, there is no necessity to use stone. Bricks would do just as well, provided they were not too well put together or too elegant-looking. Of course, they would not have to be pointed. Old bricks would really be the best to use for this purpose. The old red colour might be even more effective than my grey stone. EDWARD CAHEN.

COTTAGE GARDENS

IN going about the country one often comes in contact with cottage gardens where many old-time flowering plants and shrubs find a home, and which convey the idea of their having been long established. The general arrangements of these gardens are such as to leave no shadow of doubt that they were not designed of late years, but were the outcome of work of earlier days; indeed, the impression which remains in the memory is that, apparently, the design and formation of the gardens which satisfied and pleased one generation was accepted by the next without any radical change being effected. You can scarcely fail to recognise such places when once you see them, as there is about them an old-time atmosphere—a sense of repose and quiet—that impels you to pause and admire, because they are something different from what is found in modern gardens. Some of these gardens may yet be met with, and not infrequently they are found in outlying villages, off the beaten track, as in the West Country under the shadow of the Cotswold or Mendip Hills. My mind reverts to one I visited years ago. It was partly surrounded by a yew hedge, the density of which indicated its antiquity, but good sense had been shown in that it was not too high to obscure vision of the road. The house itself, a stone structure, stood some distance back, so that most of the garden was visible from the windows. Stone, evidently of local origin, had been freely used in the formation of paths, for the edging of walks, and in building low walls. The great artist, Time, had weathered the stones in varying tints of amber and brown, and had also left its mark on the once grey tiles on the roof of the house. In a corner of the garden was a well, the only source of water supply, which had never been known to fail, built up about a yard above ground level, and lined with the same kind of hard stone. Covering the approach to the well, and visible for quite a long way down, polypodium ferns grew in profusion between the niches. Here and there the dense yew hedge had been cut in, leaving recesses for stout oak seats—nests for rest on summer days. One was not surprised to find box employed for edging certain beds on the lawn and some of the borders, but its regularity demonstrated that the shears had been used periodically, so much, indeed, that it was neat to a fault. My visit was in late spring, when laburnums were commencing to hang their trails of gold, and before the last of the flowering currants had disappeared. The borders attracted me greatly, as in them were clumps of crown imperials, of orange globe trolliuses and, what in these days one does not often see, Fair Maids of France (Ranunculus aconitifolius). Fading foliage of crocuses and snowdrops indicated where, earlier on, in company with chionodoxas and winter aconites, the first days of the year had been ushered in with beauty. In the self-same borders, the older type of Columbine alpina grew side by side with tree and herbaceous peonies; the thick coppery green shoots and leaves of the latter plainly spoke of roots having been undisturbed for years. Of lilies there were few, notably groups of white Madonna, whose peerless blossoms at the time of their opening were enshrined by a background of dark fir. But there were other oft-called lilies in those borders that were at home—day lilies, for instance, like the hemerocallises, Peruvian lilies in alstrœmerias, and those brilliant flaming spikes of autumnal days, torch lilies—the tritomas—which added glamour to the garden in the time of fast-falling leaves.

SWEET LAVENDER IN AN OLD-FASHIONED COTTAGE SETTING.

I noted clumps of delphiniums, that were called by the owner of the garden by their older name, larkspurs, and dielytras and campanulas with pinks and rockets were given places of honour.

Here were hedges of sweet briar, bushes of lavender and rosemary, and thymes and other herbs in variety. Some of the bushes were of a size as to leave no doubt of their having reached a good age, and, to account for this, one could not help thinking that not only the soil, but the clear, unvitiated atmosphere of the countryside explained the vigorous growth. Of creeping and climbing plants there was a limited number. The garden arch, with rambler roses, was not to be seen, but round the doorway and over the walls of the house not occupied by branches of Victoria plums, white and yellow jasmines and a wistaria clambered. The porch itself was clothed with honeysuckle. It was a garden that tempted one to linger, because among the plants and flowers found growing within its enclosure one became conscious of a subtle charm—nay, it was even more than this, for it was typical of an old and fast disappearing style of an English garden, about which, as you reluctantly left it, you could not help saying, "How very nice it all is." W. LINDERS LEA.

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THE CANADIAN KEW

BY GEORGE SIMPSON.

CANADA abroad, especially in Great Britain, is thought of as a land of illimitable spaces and fertile plains, "the granary of the world," and not particularly as a land of fruit and flowers. Yet Canada, by reason of the wide range of its climatic and atmospheric conditions, is singularly adapted to the cultivation of a great variety of fruiting and flowering plants. Commercial horticulture has established itself upon a firm basis in such widely separated regions as the Annopolis Valley of Nova Scotia, the Niagara district of Ontario and the Okanagan country in British Columbia, not to mention numerous other localities where fruit-growing is carried on profitably.

Thanks to the exertions of voluntary societies, ornamental gardening is making rapid advances in urban and rural Canada, especially in the provinces of Ontario and British Columbia. The proportions to which this steadily growing movement has attained will be appreciated when it is stated that the membership of the Ontario Horticultural Association, a federation of local horticultural societies, has reached a total of almost sixty thousand adult amateur gardeners—this in one province only. Governments, provincial and federal, have taken note of the movement and are supporting it, not only by direct money grants, but by the maintenance of botanical and horticultural gardens and of horticultural teaching in universities, colleges and schools.

Chief among the agencies for the dissemination of horticultural knowledge is the Horticultural Division of the Dominion Experimental Farms, and it is at the Central Experimental Farm at Ottawa that we have what we sometimes call our Canadian Kew. Research and experimentation in subjects having commercial applications are carried on by staffs of experts, but our concern here is with decorative gardening as it appeals to the average private gardener seeking to improve his home surroundings, to indulge a hobby or pursue a speciality. In the academic sense gardening is not taught, but its practicable phases are illustrated in the extensive plantings within the horticultural limits as distinguished from the purely agricultural areas of the farm and also in the well stocked arboretum. The general gardener will be instructed by examples of well arranged perennial borders containing the principal varieties of hardy herbaceous plants suitable to Eastern Canada; summer-flowering annuals in effective groupings and especially by the great variety of hardy flowering shrubs and trees that thrive under the somewhat trying conditions encountered in the Ottawa Valley.

The specialist will find available for study and comparison most complete collections of Iris germanica and hybrid herbaceous peonies. These outstanding plants are especially adapted to Canadian conditions; they are largely planted in private gardens, a society has recently been organised to proclaim their merits and promote their cultivation, and they are honoured, like the rose, by being made the subjects of special shows.

The rose, too—principally the hybrid tea and Pernetiana—has its devotees, and at the Farm will be found almost everything worth while and some things not at all worth while, because the Farm takes the risk of trying out unknown varieties, thus saving the individual that trouble and expense. Roses originated by the principal growers in England and Ireland are planted in large numbers and it is astonishing how quickly the great majority adjust themselves to the changed conditions of their new home, proving that the rose is not only a hardy, but an exceedingly adaptable plant. Even the teas, with careful winter protection, come through, but the casualties in this class are great. The Farm is looked to for information not only in regard to the growing of roses, but also in regard to methods of winter protection, because it is only the rugosas and other hardy species that will survive the winter without covering. No attempt is made to prevent the rose bushes freezing, but the aim is to keep them dry and to restrain growth in the spring until weather conditions are such that it may proceed without interruption. All feasible methods of protection are experimented with and the results published for the information of rose growers. The two plans that have proved most successful are (1) laying the rose flat, covering with dry leaves and placing over all a roof made of two boards nailed or hinged to shed water, or (2) covering the recumbent bushes with dry leaves, and over this placing evergreen boughs to check winds and hold the snow; because, after all, snow is nature's own protecting material and is effective provided it comes in quantity before a hard frost and remains until settled conditions return in spring. But the snowfall may not come until after severe freezing weather in December and following its disappearance in March a cold spell may do irreparable damage to the new growth. Hence the necessity for artificial protection.

A BORDER OF SUMMER FLOWERING ANNUALS.

THE IRIS WALK AT THE EXPERIMENTAL FARM.

The cult of the gladiolus—perfectly suited to Canadian summer conditions—is hard pressed in the effort to keep pace with the rapid multiplication of varieties. Thousands are grown at the Farm under conditions that facilitate comparison; and, that the information derived from these plantings may be distributed as far afield as possible, educational exhibits of cut blooms are staged at the principal agricultural, horticultural and industrial shows.

Does the home gardener contemplate the planting of a hedge? Many specimen hedges, deciduous and evergreen, are placed side by side, clipped and tended, ready for inspection, each disclosing some point of superiority or suggesting its suitability for a special use or position.

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A good deal of original work is being done in plant hybridisation, and some outstanding results have been obtained, notably in the production of the roses Mary Arnott and Agnes, the chrysanthemum J. R. Booth, an enormous yellow bloom, and a dozen or more greatly improved varieties of geraniums. The extensive conservatories stage a chrysanthemum show in November that attracts visitors in thousands and does much to acquaint the non-gardening public with the horticultural resources of the Farm.

To many the most interesting part of the Farm is the arboretum, where are collected the principal native and exotic trees and shrubs hardy in Eastern Canada. These are the survivors which have stood the test and can be recommended to Canadian planters with assurance; but, in the almost forty years of the Farm's existence, everything that gave promise of success has been tried—many shrubs and climbers that are accepted as commonplace in the gardens of England—and there have been casualties without number. Failures and successes have been noted and the printed record is at once a warning and an encouragement, because it shows what to plant and what to avoid. In the arboretum there is a perennial border half a mile long containing a fairly complete collection of indigenous and foreign hardy plants, and including less known dwarf perennials suitable for the edging and the rock garden. Many of these dwarfs are grown from seed obtained from abroad, because the Botanical Division which has charge of the arboretum maintains a correspondence and seed exchange with the great botanic gardens of the world.

Obviously, results obtained at Ottawa, where winter temperatures drop—very occasionally—to 20° below zero or lower and where summer temperatures rise—also very occasionally—to above 90°, would have little or no meaning for the gardener at Victoria, British Columbia, where conditions similar to those in the South of England prevail and where the early spring bulbs come into bloom in February, while the gardens in Eastern Canada slumber on under their protecting mantle of snow. Nor would these results be applicable to the severe conditions of the prairie regions, where winter temperatures are sometimes low and the snow covering light. Because of these climatic variations some thirty branch farms, stations and sub-stations, have been established in different parts of the country and at nearly all of them horticultural work is carried on and demonstration plantings are maintained. An interesting detail in connection with this local and specialised experimentation is the work that has been done at Sidney, British Columbia, to demonstrate the practicability of bulb production on a commercial scale on the Pacific Coast and particularly on Vancouver Island. Darwin tulip bulbs of high quality have been grown showing that the question is economic rather than cultural. The mildness of the climate has made it possible for the Sidney farm to draw upon the world for its unique collection of flowering plants and shrubs, including many semi-tropical varieties that could not survive in other parts of the country. Rhododendrons and ericaceous plants generally do well here and roses yield their blooms in continuous succession from May to December. On Vancouver Island the English gardener is perfectly at home.

A FINE DISPLAY OF BLOOM IN THE CHRYSANTHEMUM HOUSE IN NOVEMBER.

GARDENS OF HEALING.—III

THE Health Garden can be beautiful as well as useful and interesting, for many of our flower favourites have an honoured place among the plants endowed with beneficent qualities. In fact, something of everything can be included in the medical garden. If a field were set apart for the purpose, trees and vegetables with healing properties, as well as herbs, fruits, flowers and some plants which we now designate as weeds could be included.

LILIUM CANDIDUM.

Much care is given to the cultivation of the Madonna lily on the Continent for its beauty and also for its medicinal properties. Nothing is perfect here below, and the Madonna lily has its faults. Its scent, alluring and delicious in the garden, is harmful in a room and gives rise to severe headaches and even syncope. The petals should be handled lightly, collected as soon as the flowers expand, and dried slowly *in the dark*. They are then steeped in brandy for a week or two. This decoction is used to heal cuts and bruises and to stop excessive bleeding of the former. The bulbs are dug up in the late autumn and stored in sand in a dry cellar. They are mixed with lard and boiled in milk, or cooked on ashes and applied as hot poultices for chest complaints and to assuage all violent pains.

PRIMULA VULGARIS.

Stuffy colds in the head are quickly relieved by primrose roots gathered during the winter, dried and reduced to powder and then mixed with honey or boiled in wine. Chronic headaches may be treated with the same medicine.

Infusions are made both with primrose leaves and flowers. The former allays feverishness and the latter is used extensively in France for biliousness, indigestion and nervous disorders, such as St. Vitus' dance, epilepsy and palpitations.

Boiled primrose leaves applied when very hot speedily relieve rheumatism.

CONVALLARIA MAJALIS.

The rhizome of the lily of the valley is used in pharmacy as an emetic, and an infusion of the flowers (1oz. to a pint of water) is a valuable lotion for inflamed eyes or for earache. A snuff made from the powdered flowers relieves headaches.

VIOLA ODORATA.

The sweet-scented violet is one of the most wonderful of plant healers, and seems to be coming into its own again even in England, where we so greatly ignore the virtues of our native plants. It is amazing that its properties are known only to the few.

Some eminent medical men do not deny that an infusion of violet leaves is a great aid in lessening the pain of that distressing malady, cancer. Cases have been known where, in its early stages, that disease has been arrested by applications of violet leaves. In Ireland everyone knows this, and violet leaves are universally used for this complaint. Quite recently I have been told of undoubted benefit being derived from this simple remedy in a case where the disease was far advanced. On the Continent, too, such poultices are used, not only in cancer cases but to cure sores, bruises and inflammation.

An infusion made from violet flowers is a soothing drink. It is a remedy for colds, coughs and bronchitis, and stays irritation in rash diseases. This is in use in many country places in Britain.

In Arabia and Egypt, crystallised violets are served with coffee as an aid to digestion.

One of the choicest wines of the ancient Romans was made from violet petals, and both they and the Greeks wound wreaths of violet leaves round their heads as a cure for severe headaches.

VICTORIA SLADE.

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IRISES AT VINCENT SQUARE

THE beautiful collections of irises were the predominating feature at the fortnightly meeting of the Royal Horticultural Society at Vincent Square Hall on June 9th and 10th last. Peonies were noted as the main item in the syllabus, but these were conspicuous by their almost total absence save for a few exhibits. It is certainly strange why this flower is not grown more in this country than it is. In America, widespread interest is taken in its cultivation; horticultural friends over there are doing their utmost to kindle our enthusiasm, but apparently to no avail. The Show was a representative one and presented a magnificent blaze of colour, such as only early summer and the glorious weather of the preceding days can produce.

Messrs. Kelway's name is well known throughout the horticultural world, and more especially in connection with peonies. They fully lived up to their high reputation by the exhibit which they put up. The large blooms of almost all shades provided a vivid splash of colour. Among the single-flowered varieties we noted R. W. Marsh, with petals of a fine colour of bright chocolate-crimson; Victor Hugo, with fair-sized handsome blooms well carried on good stems. The spreading petals were of a rich deep blood crimson shade. While in the choice double-flowered forms we found Lady Stradbroke, with huge heads composed of soft pink petals; Kelway's Rosemary, of a soft rosy pink shade with a tuft of lighter petals in the centre and with a haunting fragrance. This is a most attractive variety. Another sweetly scented variety was Helen Glover, whose many rather short petals of a light rose, almost flesh-coloured, shade give the flower a characteristic appearance.

Another fine exhibit was that staged by Mr. K. Gifford, Hornchurch. This consisted of sprays of Pæonia albiflora grandiflora in vases. The blooms were large and handsome, fully 6ins. across. The appearance of the flowers is enhanced by the large cluster of golden stamens in the centre of each, which stand out like a miniature pin-cushion. It presented a most striking appearance when seen in the mass.

Mr. J. C. Allgrove was also showing a few species and varieties, such as Pæonia Delavayii and Veitchii, both characterised by their dissected foliage and small yet nevertheless handsome flowers. Pæonia The Bride was also shown and attracted considerable attention. They were shown off to advantage by the huge spikes of Eremurus robustus Magnificent, which acted as a fine background to Mr. Allgrove's stand.

Irises formed the chief exhibits. Magnificent collections were shown by a number of firms, and the tall spikes of bloom in blue, purple and yellows greatly added to the floral display. From these groups the garden value of the iris could be well appreciated. Some of the newer varieties, especially those not yet named, were singularly beautiful. The texture of the petals, the general shape and form of the flowers, as well as the colouring, was remarkable compared with the garden iris of twenty years ago.

Messrs. Wallace had an excellent exhibit of some of the finest varieties grown in their iris fields at Tunbridge Wells. Souvenir de Mme. Gaudichau, with large violet standards and velvety purple falls, was one of the most striking of the neglecta section. Lent A. Williamson was a variety of great size, with flowers formed of soft lavender standards and velvety purple falls, on which bright golden beards made a pleasant contrast. Pioneer, one of the best reddish purple irises raised recently, had a bright golden beard on the glowing purple falls, and is a variety of vigorous growth. Queen Caterina, a pale lavender-violet self; Shekinah, a lemon-yellow; and the beautiful variety, Ambassadeur, with its reddish-violet standards and velvety brown falls; Gold Crest, Sindjkhat and Leonato, are only a few of the handsome irises exhibited by Messrs. Wallace. This firm were also showing Prospero, Dora Longden, Gules and Roseway.

Among the collection of irises from the Orpington Nurseries were some interesting varieties—Evadne, a sweetly scented rose-red self, was a well branched variety Harmony, a rich violet blue self; Gabriel, with clear lavender standards, and falls of light violet-blue, deeper at the haft, stood out from among the rest. Asia was a distinct iris, strong in growth, with suffused and reticulated lavender standards and light purple falls heavily reticulated at the haft. Imperator, Red Admiral, Zulu and Tenebrae were much admired; while Quaker Lady and Fro appealed to many.

Many noteworthy varieties were shown by Messrs. G. Bunyard and Co., and considerable care in culture must have been expended to produce such perfect specimens. It was difficult to choose a representative list from such a fine collection, but among them were Monsignor, a tall bearded iris with satiny violet standards and crimson-purple falls; Mdlle. Schwartz; Tristram, with clear white standards and deep rich purple falls heavily veined; and Ed. Michel, a wine-red self. Souvenir de Mme. Gaudichau Ambassadeur, Ann Page, Crusader, Dalila and Mercedes were also shown.

One of the most striking of Mr. Amos Perry's irises was Mrs. H. F. Bowles, a variety introduced by the exhibitor. It is of a colour difficult to describe accurately, the general effect being rich brownish red, formed by soft brown standards overlaid with old gold and brick-red falls. Abenda possessed some beautiful bronzy shades; and Olympus was good both in size and form. Geneva, Dejah, Marjorie Tinley, George Yeld, Mrs. Marion Cran and Mrs. W. Cuthbertson were all well displayed. Among the bearded irises was a group of that beautiful sky blue Siberian iris, Perry's Blue.

Messrs. Lowe and Gibson had some sweetly scented varieties among their meritorious exhibit of irises. Rodney, one of the bluest of the irises; the dainty Camelot, Eldorado, and the handsome flowers of Ed. Michel were conspicuous. Most effective was the variety Crusader, with standards of clear lavender blue and falls of deep violet. Dimity, Azure and the popular Prosper Laugier were also exhibited.

One of the most attractive irises exhibited by Messrs. Waterers was Sweet Lavender, a strong-growing variety of a beautiful rosy mauve shade. The standards were pale lavender, and the widely expanded falls a deep rose-lavender. Cluny, a magnificent variety belonging to the pallida section; Drake, a pale blue; Memory, and White Queen, were all beautiful. The number of blooms on each spike, and the texture of the petals of Messrs. Waterers' irises were exceptionally good.

It was difficult to know where to begin and where to end when making a selection from Messrs. Barr and Sons' splendid exhibit of irises. Groups of flowers of all shades adorned this stand. Some of those belonging to the variegata section were very lovely. Prince of Orange, with rich golden standards and brown falls veined with orange, together with Lorely and Mithras, were typical of this class. Such varieties as Red Cloud, Her Majesty, Stella, Tamerlane and the fragrant Ringdove were seen on this stand.

Mr. George Whitelegg also exhibited irises of all kinds. Empress of India, a fine variety of pallida form; the tall-growing Asia, which, although unusual, is yet effective; Halo, Opera and Nibelungen were a few of those particularly suitable for grouping in the iris garden.

Messrs. Dobbie and Co. of Edinburgh put up a fine exhibit of long-spurred aquileigas in all colours. These were set out in fibre so as to produce the most natural garden effect possible. By such a method of arrangement one can recognise at once the garden value of these beautiful columbines.

One of the best colour effects in the Show was that produced by Mr. H. J. Jones' stand of hydrangeas. Years of cultivation, selection and rejection have had the desired result of producing some of the finest varieties of this flower which we have ever seen. The blending of the colours was excellent—shades of pinks, blues and mauves relieved by dashes of white. A few of the notable varieties on view were Rhinegold, of bushy habit and carrying large trusses of rich pink flowers; Rubis, which may be said to be a new variety, bearing well shaped trusses of bloom tinged with almost a reddish shade; Niedersachen, carrying large trusses of a blue to mauve colour, a most attractive variety; Germaine Mouillere, a pure white variety with glossy foliage. The flowers are fimbriated and are borne in fine large handsome trusses. All these varieties are first-rate plants for interior decoration, and Mr. Jones is to be congratulated on the excellent results which he achieves in the cultivation of this genus of shrubs.

An attractive subject for exhibition purposes was Crassula coccinea minor, staged by Baron Bruno Schröder. It looked remarkably well in the mass, relieved by the greenery of decorative foliage and backed by a few clumps of lilies. This is a robust and shrubby plant which, judging from the specimens shown, reaches a height of about 12–18ins. The leaves are ovate in shape and very closely imbricated, and about 1–1½ins. long. The bright scarlet and slightly fragrant flowers are borne in numerous dense heads, and the plants were very floriferous. They were all well grown, and great credit is reflected on the head-gardener, Mr. E. J. Henderson.

That the season for rhododendrons is not yet over was evidenced by the fine exhibit of hybrids staged by Messrs. Waterer Sons and Crisp. Among many of the fine varieties were to be seen Lady C. Mitford, Bagshot Ruby, Donald Waterer—a new variety, carrying rather flat trusses of rosy pink-edged flowers; Philip Waterer, also a new variety, bearing large shapely trusses of large delicate rose-pink flowers of a good form; and a number of hybrids of R. discolor. It would appear that there is no end to the ever increasing number of hybrid rhododendrons which are entering into cultivation, and it is remarkable how high a standard is reached in the production of these new forms, as was evidenced by this exhibit.

A new arrival in the world of carnations was also to be seen at the Show. This was a new perpetual-flowering variety, named Mrs. Vlasto, exhibited by Mr. J. C. Beck of Henley. It appears to be of a good strong constitution, bearing well shaped blooms of a shade of petunia and white on tall wiry stems. The calyx is firm and of perfect shape, while the blooms have that excellent fragrance reminiscent of an old clove variety, only in a slightly stronger degree.

The lupins exhibited were truly wonderful. The strength and length of the spikes, and the great variety of art shades which are now obtainable, greatly add to the value of this useful border plant. Undoubtedly, one of the most popular lupins of to-day is Downer's Delight, which was shown by nearly every

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firm exhibiting lupins. In each case it was perfect, both in colour and form. Sunshine, Pink Pearls and Cross Roads are three other favourites.

Mr. G. R. Downer was showing some of the best of his famous lupins, including May Princess, Red Star, Artist, Nublu, and the beautiful white Snowfall. Mr. T. Carlile had some varieties of his own raising among his collection. Lodden Bridesmaid is one of his recent introductions, and is a pale lemon variety with pale lavender keels. 21st Lancers (one of the strongest growing of all lupins and of unusual colour), Milly, Tunic, Apple Blossom, Happiness and Queen of the West were the most conspicuous of this exhibit.

The Maytham Gardens had a special strain of seedling lupins which were vigorous in growth and clear in colour. Maytham Sunrise and Maytham Elegance, a deep pink and a deep blue, were two of the best. Messrs. Harkness and Sons were showing lupins of glorious shades, such as Captivation, Joy, Pink Progression and Annie Myers. An interesting collection of hybrid seedlings in a wide range of colours was shown by Mr. H. Marcham. It illustrated the great value of the newer shades of lupins. Rose Bedder, King of the Blues, Brenda, Mount Everest and Afterthought could be seen among Mr. Maurice Prichard's exhibit. Lupins were also shown by Messrs. Bakers and Rich and Co.

For excellence in arrangement and quality of the flowers, the exhibit of sweet peas by Messrs. R. Bolton and Son was most noticeable. Large bunches of vivid-coloured flowers borne on long stems formed a brilliant array. The number of varieties selected was not great, but those exhibited were some of the best. The novelty of outstanding merit shown by this firm is Gold Crest, a pinkish salmon, a beautiful colour in artificial light. Peggy, Royal Pink, Ivory Picture and Black Bess (one of the darkest of all sweet peas) were other new varieties shown by Messrs. Bolton.

Messrs. Alex Dickson and Sons of "Hawlmark" fame had a varied and good collection of sweet peas. Many of the old varieties as well as several novelties could be seen. A splendid new variety was Crusader, a lovely orange-salmon. Mermaid, a sweet pea raised by this firm, is a soft lavender very similar to Powerscourt. Stella, a large cream with a definite rosy margin; Blue Bird, Purple Perfection and Royal Scot were all striking varieties.

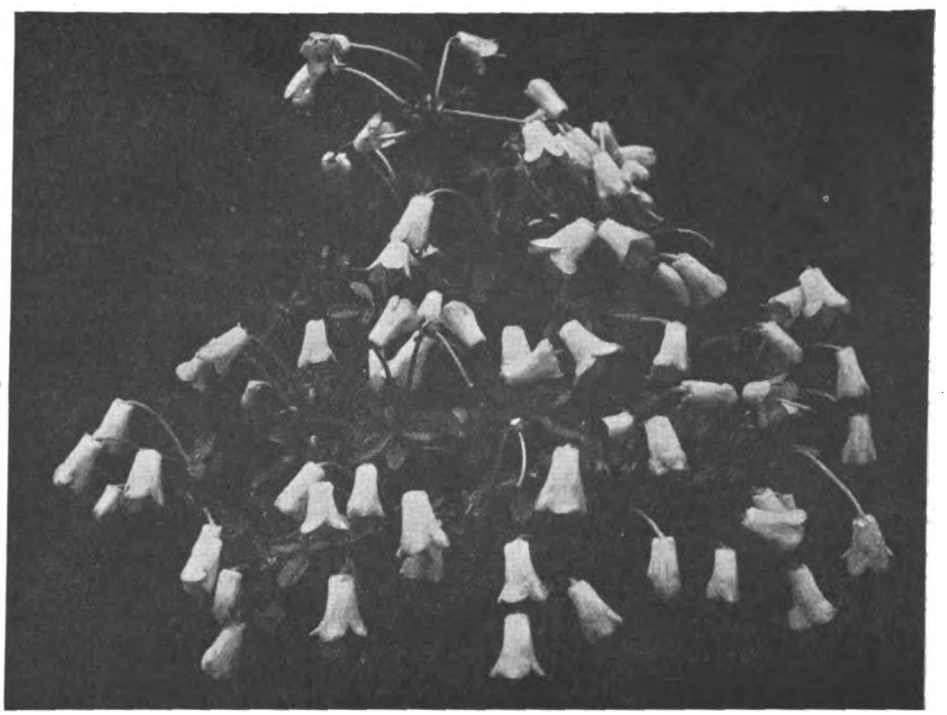
The alpine section seemed to feel that it was the day of the border plants, but there were several very interesting plants in the rather meagre and diminished exhibits.

Messrs. Reuthe showed Conandron ramondioides, the Japanese "mountain tobacco," that promised to be a valuable rock plant, but failed to be sufficiently hardy. It might do well in the warm West Country, and its dark lavender flowers with a golden-brown eye, like a waxy and refined potato blossom, are worth a little trouble.

Messrs. Tucker showed Epilobium macropus, a New Zealander and one of the best of willow herbs for the rock garden, for it is not a pervasive ramper like so many of its family, but makes a neat mat of rather bronzy leaves and covers it with pearly white flowers on dark red stems; Linum collinum, Seedling No. 2, a form that preserves the deep blue which distinguishes L. collinum from L. alpinum, but is more upright and compact than the type; Papaver pyrenaicum, in its orange form, which suffers with the other alpine poppies from being regarded as no more than a miniature Iceland poppy, though they are all high alpines, typical scree plants and quite individual in their grace and brilliance; Aquilegia concolor, which seems to be a neat, dwarf form of A. pyrenaica, carrying its pale lavender flowers rather more upright.

Messrs. Maxwell and Beale showed Dryas Sundermanni, the hybrid between D. octopetala and the yellow D. Drummondii, but their plant had large, pure ivory white flowers instead of the straw yellow ones of the usual form and seemed altogether more attractive; Farrer's Campanula Miranda, a curious plant with flowers that are as nearly grey as any in the garden, and enormous against the tiny leaves; Lithospermum intermedium, that in its own home looks like a tuft of gentian-blue heather and likes a really warm dry spot in this climate; Matthiola fenestralis, a neat little stock in faded purple that looks very well with Onosma tauricum and appreciates the same conditions.

The Hemsley Nurseries showed Cyananthus incana leiocalyx, a curious and beautiful alpine from Yunnan with long prostrate shoots, each carrying a single starry blue flower covered with long silky white hairs faintly tinged with gold; a variety of Geranium argenteum with flowers deep red instead of the usual pink, and contrasting sharply with the silvery green of the neat rosette. In the background were some plants of a white anchusa raised by the firm and, although blue is rare in the garden and white is common, yet this albino, besides serving as a foil to show up the type, has a certain frosty beauty of its own. Beside it was the



ONE OF THE FINEST OF ALL DWARF RHODODENDRONS. R. MYRTILLOIDES.

THE HANDSOME BLOSSOMS OF CISTUS LADANIFERUS IMMACULATUS.

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monstrous foxglove that produces a huge single petunia upright on the top of its ordinary spike of flowers. It is strongly recommended to lovers of the curious.

Among the other exhibits were the following:

Ageratum.—Messrs. Dickson and Robinson.
Alpines.—Messrs. Bakers, W. H. Rogers, Skelton and Kirby, F. K. Wood.
Antirrhinums, Clarkias, etc.—Swanley Horticultural College.
Carnations and Pinks.—Messrs. Allwood Brothers, C. Engelmann, C. H. Herbert, Stuart Low and Co.
Clematis and Other Shrubs.—Messrs. L. R. Russell and Co.
Greenhouse Plants.—Messrs. Stuart Low and Co.
Herbaceous Plants.—Messrs. Blackmore and Langdon, J. C. Allgrove, Bakers, Chalk Hill Nurseries, Harkness and Sons, K. and E. Hopkins. G. A. Miller, B. Ladhams, Rich and Co., Skelton and Kirby, W. Wells.
Lupins.—Messrs. J. Cheal, Hemsleys, Harkness and Sons, Dickson and Robinson.
Orchids.—Messrs. Sanders and Stuart Low.
Pelargoniums.—Messrs. Godfrey and Son.
Roses.—Messrs. George Prince and J. H. Pemberton.

NEW AND RARE PLANTS.

CISTUS LADANIFERUS IMMACULATUS.—This is a beautiful pure white unspotted form of the species sometimes known as albiflorus. The flowers, almost 4ins. across, with broad white petals slightly crimped at their margins, are borne solitary at the end of the slender side branches. Award of merit. Shown by Sir William Lawrence.

RHODODENDRON MYRTILLOIDES WARD 3172.—One of the rare species of this genus, largely owing to its late introduction and from its appearance, it is one of the finest of all our dwarf rhododendrons. It is a dwarf shrub reaching about 6ins. high, bearing numerous solitary flowers which resemble waxen bells of a firm texture. In colour, they are of a light pink to plum colour and inside a shade of reddish white. Award of merit. Shown by Mr. Lionel de Rothschild.

ECHIUM WILDPRETII.—This species is a native of the Canaries and is not hardy in this country. It is a tall soft hairy biennial with simple erect stems reaching a height of about 3ft. It is very floriferous, bearing numerous pale dull red flowers, the colour of which is relieved by the exserted filaments, in a long terminal spike. Award of merit. Shown by Mr. Charles T. Musgrave, Godalming.

RHODODENDRON MRS. WILLIAM WATSON.—An attractive hybrid, carrying loose trusses of white flowers blotched with reddish crimson. The trusses of bloom are carried well up from the foliage. The individual flowers are about 2ins. across. Award of merit.

RHODODENDRON MRS. A. C. KENRICK.—This variety carries loose trusses of pink-edged, prettily crisped flowers, the colour shading to white in the throat. The petals are slightly blotched. Award of merit.

RHODODENDRON LADY DE ROTHSCHILD.—The whitish to pink flowers, almost 2½ins. across, of this hybrid are carried in loose trusses standing out from the dull green of the foliage. Blotches of a dark maroon shade occur on the petals. Award of merit. These three hybrids were all shown by the executors of the late Anthony Waterer.

RHODODENDRON IDA WATERER.—This attractive variety carries fairly large, frilled flowers of a violet-rose tint.

RHODODENDRON TED WATERER.—The wide, rather flattened blossoms of this form are white in colour, tinged with lavender at the edges. On one of the petals blotches of yellow occur.

RHODODENDRON DISCOLOR HYBRID.—This is a showy variety, carrying expanded, long tubed flowers of a rich pink colour. The petals are frilled.

RHODODENDRON MONSTROUS.—The large trusses of the handsome rose-pink blossoms undoubtedly give the varietal name to this hybrid. The flowers vary a little in colour.

The above four hybrids all received awards of merit, and were shown by Messrs. Waterer, Sons and Crisp.

SALVIA HARBINGER.—This appears to be a fine variety for summer bedding purposes, being sturdy and carrying large spikes of handsome scarlet flowers. Award of merit. Shown by Messrs. Watkins and Simpson.

CARNATION FROYLE BEAUTY.—This is a fine border variety, with blooms of a salmon-apricot shade. Award of merit Shown by Mrs. P. B. Summers, Froyle Place, Alton.

HEUCHERA PINK DELIGHT.—This does not appear to carry any distinctive marks from other varieties, unless it be its rather tall, graceful habit. Shown by Mr. G. Miller.

PYRETHRUM AVALANCHE.—This variety carries large single, almost pure white save for a pinkish tinge, blooms, 3–3½ins. across. Some of the individual blooms carried four rows of petals, while others had only two. The flowers were well carried on tall and fairly erect stems. Award of merit. Shown by Mr. H. Robinson, Hinckley.

HYDRANGEA NEIGE ORLEANAISE.—This variety certainly represents a distinct advance in white hydrangeas. It is of a good pure white, of neat habit, with bright green foliage, while the trusses of flower are really immense. Award of merit. Shown by Mr. H. J. Jones, Lewisham.

HYDRANGEA PASTEUR.—Another excellent new variety carrying huge trusses of large almost salmon pink flowers, shading to a deeper tint in the eye. The trusses are oval in shape and about 15 ins. across. Award of merit. Shown by Mr. H. J. Jones, Lewisham.

AGERATUM LITTLE BLUE CLOUD.—This is a small and compact variety of neat and attractive habit, reaching a height of about 4–6ins. It is very floriferous, carrying numerous flower heads of a pure shade of blue. Award of merit. Shown by Messrs. Dickson and Robinson, Manchester.

ORCHIDS.

MILTONIA VEXILLARIA RAJAH.—A remarkable form of this well known plant, the rose-tinted flower having an unusually large crimson-purple blotch on the labellum. It had been obtained by crossing a typical form of M. vexillaria with the variety called G. D. Owen, the latter distinguished by a blotch of similar colour, but not covering so extensive an area. Award of merit. Shown by Messrs. Black and Flory, Slough.

ODONTOGLOSSUM CRISPUM VAR. RENOWN.—A garden-raised plant of this Colombian species. The spike bore six large flowers, the segments broadly developed, white except for a reddish blotch on the centre of the labellum. Award of merit. Shown by Mr. J. J. Bolton, Claygate, Surrey.

ODONTIODA OPAL, GERRISH'S VARIETY.—An immature seedling obtained by crossing Odontioda Cooksoniæ with Odontoglossum Eximillus. The single flower, of deep rose tint heavily blotched with reddish scarlet, the labellum deep rose and with a red blotch near the yellow crest. Preliminary certificate. Shown by Mr. R. Gerrish, Milford Manor.

MOTOR MOWING MACHINES

THERE is no more arduous task in the garden than the mowing of the lawn, and any inventions which enable this work to be carried out quickly, cheaply and with the minimum amount of labour are bound to make a strong appeal to the public. The power-driven mowers now on the market are the result of the most exhaustive tests and experiments on the part of the various manufacturers and for those fortunate, or in some cases unfortunate, folk who possess large estates, the modern motor mowing machine is almost to be regarded as a necessity. The English climate certainly has many faults, but as long as cultivation is not neglected, the abundant rainfall and absence of tropical sunshine are largely responsible for producing the most beautiful lawns in the world. Except during periods of severe frost or when the ground is water-logged, the grass should be mown regularly all the year round, and, thanks to the help of the motor mower, this work can be done rapidly and efficiently. There will soon be few cricket, tennis

THE "AUTOMO," A LIGHTWEIGHT MACHINE

and golf clubs which are not provided with these machines. Improvements and extra refinements will, of course, be adopted each year, and both makers and garden owners eagerly look forward to the production of a light but strong machine, the price of which will be sufficiently low to encourage anyone who has a small lawn to purchase one and thereby be able to feel in future that grass-cutting is a pleasure rather than a labour. The Royal Horticultural Society is to be congratulated on organising an official trial of motor mowing machines, but it would be far better another time to arrange for trials to be carried out, if possible, on some private lawns, as the grounds where the trials were held in Regent's Park were far from ideal for the purpose. Not only was the grass rank and coarse, but the ground was, in places, very uneven, and in one case, at least, the operator in charge of a machine only just stopped in time to avoid running over a large piece of broken brick. The trials were of great interest, inasmuch as most of the leading makers were represented, but they could hardly be regarded as a

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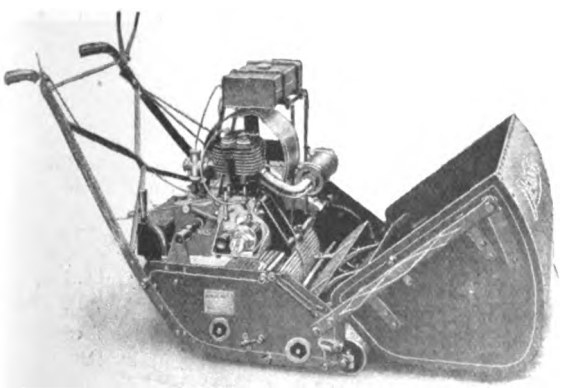
fair test of cutting private lawns, as it was in most cases impossible, owing to the irregularity of the ground, to set the rollers and knives to cut the grass really close. It would be advisable, also, for tests to be made with regard to heating, fuel consumption and the work of the machines on gradients. Among the smaller machines, the "Automo Super Lawn Mower" deserves attention. It is made in Nottingham, and a point of special importance for garden owners who intend to do their own mowing is that no spanners are required for the ordinary running adjustments. The rollers and also the knives are easily and quickly adjusted by turning a large hand wheel, and this system has been adopted under licence from the makers of the J.P. Lawn Mowers. The running cost is low, and the makers claim that the average cost of petrol and oil for 2,000 square yds. is only the small sum of threepence. With one of these machines it should be an easy matter to mow a tennis lawn regularly in one's spare time, and the cost of the labour and time saved would go a long way towards paying for the cost of the machine in the first season.

The water-cooled Governor machines made by John Shaw and Sons, Wolverhampton, should certainly be equal to many years of hard work, and every possible contingency likely to be encountered while cutting grass seems to have been anticipated.

It was, I believe, in 1832, that Ransomes of Ipswich made their first lawn mower, and ever since then the firm of Ransomes, Sims and Jefferies, Limited, have turned out lawn-mowing machines of the highest quality. The 16in. model fitted with a 1½ h.p. engine is a splendid machine for small gardens, while for use in grounds up to 5 acres the 24in. and 30in. models can be recommended.



THE "DENNIS" MOTOR MOWER.

The Auto-Mower Engineering Company, Limited, of Norton St. Philip, appeared to be making light work of the grass which their machines were set to cut at the official trials, and these machines have given great satisfaction to those who have purchased the various models during the last few years.

The M.P. (Mower Pusher) can be attached to any mowing machine in from five to ten minutes, and special fittings are supplied to fit any of the standard machines. The M.P. is fitted with a seat so that there is no need to even walk behind the machine while it is at work. When the mowing is completed, a standard fitting allows an ordinary garden roller to be coupled up ready for rolling the lawn.

Another very satisfactory machine which can be fitted to any lawn mower, and which will, therefore, save scrapping a satisfactory machine already in use, is the Rendle Motor Mower. It is made in two models, of which that known as "A" is capable of pushing mowing machines up to 28ins. and rollers up to 14cwt. Model B will propel mowing machines up to 36ins. and rollers up to 1½ tons. This is a thoroughly sound little machine, and at a cost of 1d. it will cut, with a 24in. machine, 1,000 sq. yds. in fifteen minutes.

The range of motor mowers made by Alexander Shanks and Son, Limited, ranges from a large 42in. model costing over £300 down to the very popular 16in. Wizard, which is retailed at £45. This last machine is of simple design, strongly constructed, and is driven by a 1½ h.p. engine of the two-stroke type.

Thomas Green and Sons, Limited, have been makers of lawn mowers for nearly a century. Their 16in., 20in. and 24in. motor mowers are fitted with kick starters, thereby eliminating the risk of personal injury from backfire, and this I consider a most important point. The only real limit to the daywork that may be carried out by these machines is the walking power of the actual operator.

Dennis Brothers, Limited, of Guildford, have long been famous for their motor lorries and fire-engines, and it stands to reason that any motor lawn mower made in their works will be of high quality. The machines are driven by a 4 h.p. engine, which is powerful enough to cut the grass on quite steep gradients. The engine will tick over very sweetly, and if a trailer seat is fitted it will easily travel on the level up to five miles an hour. A great point about the Dennis machine is that the driving rollers are fitted with differential gear, so that the machine actually drives round bends.

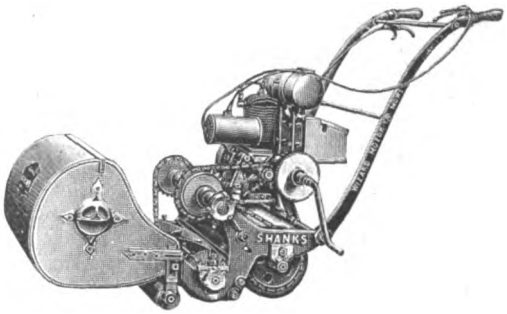
The Atco machines, made by C. H. Pugh, Limited, of Birmingham, are so well known that it is hardly necessary to refer to them. Mr. Andrews, the firm's very capable sales manager, deserves the success which he has achieved.

The future of the motor lawn-mowing machine is assured, and the demand is bound to increase year by year as the result of the successful reports of satisfied users. R. W. ASCROFT.

REPORT OF TRIAL OF MOTOR LAWN MOWERS AND ACCESSORIES.

On the reports of the judges appointed for this trial the Council of the Royal Horticultural Society has now made the following awards:

Awards of Merit.—42in. motor lawn mower from Messrs. Thomas Green, Limited, for use on sports grounds and similar areas. 30 in. motor from Messrs. Shanks and Son, Limited, for lawns. 30in. motor lawn mower from Messrs. Dennis Brothers, Limited, for lawns. 24in. motor lawn mower "Jehu,"



THE "WIZARD" MACHINE OF MESSRS. SHANKS AND SON.

from Messrs. Alexander Shanks; 24in. motor lawn mower from Messrs. Dennis; 24in. heavy motor lawn mower with trailer seat, from Messrs. Thomas Green; 20in. light motor lawn mower with trailer seat, from Messrs. Thomas Green; and 16in. "Wizard" motor lawn mower from Messrs. Shanks for small lawns.

Highly Commended.—30in. Atco motor mower with seat, from Messrs. C. H. Pugh, Limited, for large lawns; 24in. auto-mower with seat, from the Auto-Mower Engineering Company; 18in. Auto-mower with seat from the Auto-Mower Engineering Company; 16in. Atco motor mower, from Messrs. C. H. Pugh, Limited, for small lawns; 16in. Atco motor mower with twelve blades and special sole plate from Messrs. C. H. Pugh, Limited, for very fine lawns; G.N. motor attachment for lawn mowers, from Messrs. G.N., Limited; motor pusher with forecarriage, from the M.P. Company, Limited, for drawing lawn mowers, etc.; Rendle motor mower attachment, from W. Edgecumbe, Rendle and Co., Limited, for pushing lawn mowers; trailer seat for motor mowers, from Dennis Brothers.

Commended.—22in. "Governor" water-cooled motor lawn mower from Messrs. John Shaw and Sons; 22in. "New Godiva" motor mower, from the Godiva Engineering Company, Limited; 22in. Atco motor lawn mower, from Messrs. C. H. Pugh, Limited: 16in. Automo motor lawn mower, from Messrs. F. Mitchell; motor pusher, from M.P. Company, Limited, for pushing lawn mowers.

The R.H.S. Amateur Flower Show.—Owing to the difficulty which amateurs find in deciding in advance whether their flowers will be at their best at the date of the show, it has been decided to postpone the latest date for the acceptance of entries until Saturday, June 20th.

The Knaphill Nursery.—It is announced that the well known rhododendron nursery belonging to the late Mr. Anthony Waterer at Knaphill, near Woking, will be submitted to auction by Messrs. Buckland and Sons at Woking on July 9th. The wonderful blooms are now almost at their perfection and we understand the nursery will be open for inspection by the public during the coming week or so.

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SIMPLE GARDENING

FRESH VEGETABLES AND SALADS.

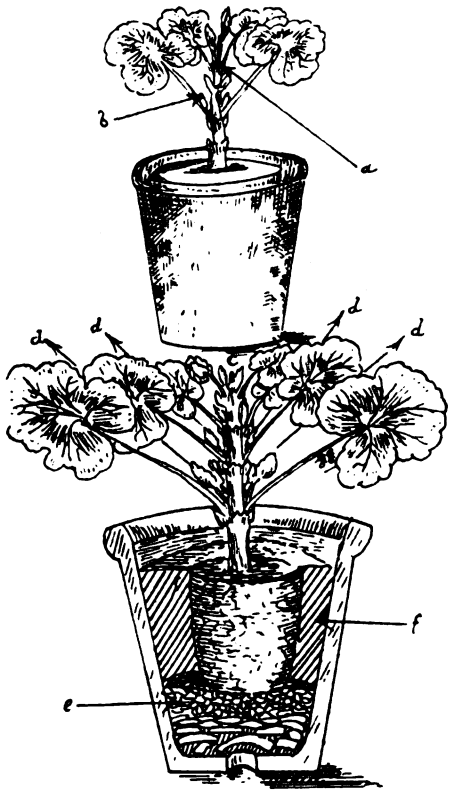
YOUNG vegetables and salads may be obtained late in the summer and during the early part of the autumn if seeds of suitable kinds and varieties are sown now, and, in the case of salads, at intervals till the end of July. I am referring to those salad plants, raised from the latest sowings, that grow to a condition fit for using in a few weeks' time. The sowing of seeds at this time of the year is not a new idea, but there are thousands of amateur cultivators who do not adopt the plan. Ground should not be allowed to remain uncropped at this season. In four out of five gardens there are small quarters where quickly maturing crops may be grown. Furthermore, the lifting of early potatoes and the clearing away of early rows of peas, broad beans and spring cabbages, leaves ground vacant. The stump-rooted varieties of carrots are valuable for sowing now. The seeds germinate quickly, so, also, do beet seeds, and very nice roots of both kinds will be available by the end of October. The resultant seedlings should be thinned out at an early stage to allow those plants left to thrive. The earliest cauliflowers should be selected, the seeds sown in the drills thinly and the young plants duly thinned out; it will not answer if transplanting is done. Turnips are splendid, and sowings of these and lettuce may be made monthly till the end of August. Early sorts of dwarf or French beans often prove the tenderest from sowings at this time, but peas sometimes mildew badly. It is very interesting and remunerative work, and keeps the garden full of good things.

FINAL POTTING OF CHRYSANTHEMUMS.

Before the end of June all plants grown in pots should be placed in their flowering pots and in their summer quarters, where they should remain till, approximately, the last week in September. I find that many inexperienced cultivators think it quite necessary to mix a compost of many parts to ensure success. The main ingredient should be good fibrous loam in which the grass has died—it should form nearly two-thirds; leaf-soil and coarse sand, one-third. To a bushel of the above combined parts add a 5in. potful of bonemeal and wood ashes, respectively, and a 6in. potful of old lime rubble broken up finely. The whole should be thoroughly mixed. Pots varying in size from 7¼ins. to 11ins. may be used, the first for single spring-rooted plants of the weaker-growing sorts, and the 8in., 9in., 10in. and 11in. pots for the stronger, winter-rooted specimens. But it is rarely advisable to place one plant in the 11in. size; two plants will not be too many unless very large specimen plants, bearing many blooms, are required. The cultivator should see that the plants are watered a few hours before they are potted. In all except the two largest-sized pots one big crock will be sufficient if covered with rather lumpy fibrous loam before any general compost is put in. The new soil should be made firm with the potting-stick and room left at the top for water. Staking, too, should be carefully done, as young shoots are too valuable to lose now. Very careful watering is essential for three weeks after potting.

SUMMER TREATMENT OF ZONAL PELARGONIUMS IN POTS.

The zonal pelargonium is a soft-wooded plant that grows luxuriantly in good soil, and its sappiness is increased when the plants are not fully exposed to the light and air. If well baked in the sun from the end of June till the end of August the stems will be short-jointed, the leaf-stalks short, and the leaves thick and almost leathery. Such



specimens are going to prove highly useful throughout the winter months if they are housed in a light structure, well ventilated and subjected to a comparatively dry atmosphere and a temperature approaching summer heat. Opposite conditions to the above-named ones would mean wholesale disappointment to the cultivator. A whole greenhouse, or one stage in it, filled with well grown nicely ripened plants in early autumn will ensure a never-ceasing interest throughout the winter months. These plants are old favourites, and if only on account of the cheery brightness of their flowers, they will continue to be so with amateurs. The position of the plants outside should be a warm one as stated, but careful watering and feeding are essential points. To obtain well balanced plants is another important point; this is done by judicious stopping, as we shall now see. At *a* the point of the young plant is pinched off; side shoots at once begin to grow at *b*. Either before, or soon after, re-pot; the centre shoot, *c*, again begins to lead; *d*, *d*, *d*, *d*, will also soon be filled with side shoots. Stop these, in turn, in August and always remove flower-buds to end of that month. At *e* good essential pot drainage is shown; and at *f*, the new compost. Bonemeal forms a grand ingredient.

TRAINING GRAPE VINES.

Where, I wonder, is the amateur cultivator who does not like to listen to the sound of dropping grape berries as he is engaged, in the cool of the evening or early morning, in the work of thinning well set bunches of grapes? To secure such fine bunches we must look to the training of the shoots, so that the strength of the vine is directed to the perfecting of main leaves, those of lateral leaves and the stems of the shoots bearing the bunches. Of course, the vine rods are already a fixture for this year; they are, usually, tied to wires too near to the glass, and then there is not sufficient space for the current year's shoots and leaves to grow in and be, as they should, clear of the glass. Where such a condition obtains now, note should be taken of it, so that a better arrangement can be made next year. The side branches, bearing the bunches, always grow upwards towards the roof glass. It is advisable, but not absolutely necessary, to bring them to the wires, but this can only be done safely a little at a time. The variety Black Alicante is very brittle when young and whole shoots are lost if unduly forced down. Mostly, it is safe to tie finally to the wires directly the berries are set. The plan should be to cover entirely, but evenly, the roof space with thick, leathery main leaves and lateral leaves. Stop the branches two or three joints beyond the bunch of grapes and the side laterals beyond the first leaf, removing altogether all sub-laterals while quite small.

MULCHING AND TOP-DRESSING.

Mulching and top-dressing, to a certain extent, serve the same purpose. But there is a real difference. The top-dressing materials should be richer than the main body of soil used in potting or planting in bulk. When we pot or plant we are supplying a compost for a few roots to benefit by it and, on account of the fewness of the roots, we must be careful to supply such mixtures as will induce new roots to enter them and remain sound, fibrous, for a long time. When top-dressings are applied they are intended as supplementary to previous composts in bulk and are to keep up, if not increase, the vigour of the plants after their roots have exhausted the nutriment in the first applied compost. Mulching means the application of substances which act temporarily, preserve surface roots, encourage their increase and conserve the moisture of the soil by preventing wholesale evaporation.

GEORGE GARNER.

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THE GARDEN

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IT IS AT THIS PERIOD OF THE YEAR WHEN THE BLENDING AND TONES OF COLOURS AND COLOUR SCHEMES ARE SEEN TO BEST ADVANTAGE THAT NOTES OF IMPROVEMENTS TO BE CARRIED OUT IN THE LATER MONTHS SHOULD BE MADE. HERE WE HAVE A DOUBLE BORDER IN WHICH PINKS, BLUES, MAUVES AND WHITES MINGLE TOGETHER WITHOUT A TRACE OF HARSHNESS, AND PRODUCE AN EFFECT WHICH IS WHOLLY PLEASING TO THE EYE.

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HARDY CYPRIPEDIUMS at CHELSEA

BY GURNEY WILSON.

THE beautiful group of hardy cypripediums exhibited at the Chelsea Show by Mr. Albert C. Burrage of Beverly Farm, Mass., U.S.A., was not only an entirely unexpected event, but it formed one of the outstanding features of the whole Show, and the award of a silver-gilt Lindley medal was suitably given in recognition of its scientific and educational value. Considering the remarkably fine specimens that were contained in this exhibit, the actual collecting of them must have been a matter of much explorative work. This was followed by establishing the plants in shallow boxes, sufficiently strong for exportation to England, and filled with native soil. On arrival in England, Mr. E. M. Preston of The Warren, Hayes, Kent, very kindly gave every facility for the plants to be brought into flower in his garden, while the practical duties were ably carried out by his gardener, Mr. C. F. Wood. As these boxes of dormant plants arrived in a solid and frozen state, great anxiety was felt by the various people responsible for this group that the different species might not all be in flower for the opening day of the Show. Thanks to elaborate directions prepared in America, to the transmission of English weather reports, to cable messages as to the plants' progress in Kent, and largely to careful attention to cultural details, everything came out successfully.

CYPRIPEDIUM PUBESCENS WHICH BEARS A STRONG RESEMBLANCE TO C. PARVIFLORUM.

ONE OF THE "DIFFICULT" NORTH AMERICAN SPECIES TO FORCE, CYPRIPEDIUM REGINÆ OR SPECTABILE.

This imposing group occupied about 400 sq. ft. The pine trees formed a background, and under their shade were arranged the many plants of Cypripedium acaule, thus following the natural conditions under which this species exists in its native habitat. The history of this plant goes back to the year 1789, the date of Aiton's "Hortus Kewensis." It is commonly known as the pink moccasin flower. The front of the labellum is folded in from the sides, and the two margins meet except for a narrow slit, and they fold in such a way that the sides slope all round and down to the narrow opening. The two basal openings are several times larger than the slit in front, which, however, opens inwards with a very slight pressure, so that a small insect alighting on the pouch would readily find ingress, but could not return, and must leave by way of the basal openings after first passing the stigma, and then rubbing against the sticky pollen which would be carried to the next flower visited. A rare albino variety occurs and differs from the type in having light green sepals and petals and a pure white labellum or pouch. C. acaule is the easiest of all the American cypripediums to force, and takes but four or five weeks to reach the flowering stage.

The central zone of this exhibit was composed of many superb specimens of Cypripedium parviflorum and C. pubescens. These plants closely resemble one another, and as the former was described in the year 1791 and the latter in 1804, C. pubescens is sometimes referred to as a variety of C. parviflorum. The larger flowers are all borne by C. pubescens, whose sepals and petals are often lighter in colour. But in Mr. Burrage's plants several masses had both kinds intermixed, and this supported the previously recorded opinion that not only are they one and the same species, but that one variety might pass into the other when influenced by different climatic conditions. Rolfe referred both these plants to the earlier name of C. hirsutum applied by Miller in 1768, and as the entire plant is clothed with hairs, the name is certainly appropriate. But as no type of Miller's species is extant, and great uncertainty exists, Professor Oakes Ames considers it

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unwise to adopt this earlier name. The flowers of C. parviflorum are sweetly scented, and on this account it is generally known as the fragrant yellow moccasin flower. The experience of American cultivators is that the flowers of C. parviflorum open slowly, but last a long time when matured, longer than those of C. pubescens. Both bear a strong resemblance to those of the English C. Calceolus, but Rolfe has stated that in the American plant the staminode is trulliform-ovate and flat, while in C. Calceolus it is oblong, concave or duplicate.

The foreground of this remarkable exhibit comprised many superb masses of Cypripedium reginæ, perhaps better known to many under the name C. spectabile. Although both names are appropriate, the former meaning queenly appearance and the latter showy, C. reginæ must be adopted, as it dates from 1788, when the plant was described by Walter in "Flora Caroliniana," thus three years earlier than the publishing of C. spectabile by Salisbury, which occurred in 1791. In the opinion of several authorities, the plants shown by Mr. Burrage were the finest that had ever been exhibited, the central specimen having as many as fifty vigorous growths. This is one of the difficult plants to force, for if the temperature is maintained at over 55° the growths fail to produce flowers. Under the more natural conditions of a lower temperature the growths yield from one to four showy flowers,

CYPRIPEDIUM ACAULE, THE PINK MOCCASIN FLOWER.

whitish tinged with pink, the shoe-shaped labellum of a much deeper pink-purple colour. Although chiefly recognised as a North American species, it has been discovered on the borders of China and Tibet. C. reginæ album, in which the colour has vanished from the labellum, leaving it snow-white, flowered at Kew in 1897, but a much earlier record is the plant figured by Sweet ("British Flower Garden," III, t. 240) under the name C. spectabile album, thus reviving the old specific name of C. album applied to this plant by Aiton in 1789 ("Hortus Kewensis"), or just a year after its original name of C. reginæ.

Cypripedium arietinum was also well represented by numerous plants prettily arranged between those of the much larger C. reginæ. The specific name arietinum refers to the conical labellum resembling a ram's head, and these flowers, borne singly on the apex of a slender growth some 6ins. to 9in. high, possess distinctive features that more than compensate for their comparatively small dimensions. The sight of over a hundred flowers of this species effectively arranged among other members of the genus will long be remembered, while the little stream of water, bordered by Osmunda regalis, gave a most finishing and natural border line. At each end were five specimens of Tsuga canadensis, also from the United States, while a few rocks and an abundance of moss completed the exhibit.

The POSSIBILITIES of SOUTH COAST GARDENING

RESIDENTS in Scotland, the north of England and the north midlands have the impression that practically all kinds of plants may be grown on the south coast without being damaged by severe frosts in winter and late spring frosts. There are exceptions, of course, as some northern residents realise, and frosts more severe than the average do come in the south. I remember two long, hard frosts during the forty years I have lived in Hampshire, and much damage was done to plants not protected or covered with snow. But, generally, I can say from experience, the possibilities of gardening in and around Bournemouth and the south coast are very great, and enthusiasts know this and take a lead in matters horticultural. Many gardening societies have been in existence for a long time and new ones are formed every year.

Rare trees and shrubs receive much attention and thrive remarkably well. Herbaceous, rock and alpine plants are extensively grown and with great success, not only by experts, but amateurs, too. With the exception of certain districts, fruit is satisfactorily grown. In many parts it is of the highest quality. Pears fruit well on walls, but only moderately on orchard or open border trees. Plums, in the districts extending from beyond Poole Harbour to Southampton, are not a success unless lime is added to the soil. The latter varies in composition considerably. Sand, gravel, light, medium and heavy loams are met with in quite small areas, and then, suddenly, one steps upon peat or clayey ground which produces wonderfully fine crops of wheat—and roses.

The latter remind me of Mr. Walter Child Clark's roses at Micheldever House, Bournemouth. This gentleman has made a rose paradise among the pines of his garden. Scarcely a cartload of the original soil was suitable for roses, but good loam was used to replace the peat and gravel removed to form beds, and with wonderful results. I think the best time to see these flowers is in the evening when the sun is setting. The flowers are seen in masses in beds and even trailing over bushes and round the gaunt trunks of the pines—a charming picture, indeed, the subdued light enabling the eyes to see the delicacy of the colour of the petals to the full.

On the other side of Bournemouth, nearer Poole, Mr. J. J. Norton has established an almost perfect collection of rhododendrons, which his able gardener, Mr. C. Nippard, maintains in fine health. At Branksome Dene Mrs. Cassel has a large garden and a most interesting woodland. Herbaceous borders have, at a suitable distance, a background of trees and shrubs. Grass here is used in place of gravel paths, and forms a fitting setting to the azaleas and other numerous spring-flowering trees and shrubs and the bulbs. This garden is situated on the cliffs, and is exposed to the full force of the south-west gales, but there is ample protection afforded by the many acres of pines and other trees. Of course, protection of choice subjects is one of the things first considered when a garden is formed in these parts. Pinus insignis, evergreen oaks, Cupressus macrocarpa are, probably, the most generally planted as wind screens, according to the size of the garden and its grounds.

The Bournemouth Public Gardens contain many rare trees and shrubs and also border plants. Every year there is a judicious change in the bedding-out arrangements, and these afford visitors every opportunity to study and copy them if so minded.

Pines and other kinds of trees are left in natural formation where possible, so that Nature is seen everywhere, even in the private gardens around dwelling-houses, thus avoiding formality, and intermingling, as it were, the work of man with that of Nature. What I may term sub-tropical plants may be used with great effect in the flower garden during the summer months, and made to resemble the groups generally seen in our greenhouses and conservatories. The natural surroundings in existing gardens, and also in districts where new gardens are to be, or may be, formed, enhance the beauty of such beds.

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Rock and alpine gardens, grottos, pergolas and those delightful, restful woodland paths where one can enjoy the early spring flowers and the baby buds on the branches of tree and shrub within hearing of cuckoo, woodpigeon and nightingale are all attainable, and do not entail much seeking.

The Swanage stone is near and known throughout the country as ideal for rock and alpine plants In the writer's own garden the stones prove their adaptability, the roots of the plants soon cling to them and appear to be quite at home. Suitable timber for pergolas is still more easily obtained and is not expensive.

At Exbury House, the charming seat of Mr. Lionel de Rothschild, large woods have been cleared of undergrowth, the soil—clay, peat, loam and gravel mixed, in places—dug up, and thousands of rhododendrons and azaleas with other choice shrubs planted. Lakes, rockeries and waterfalls have been planned and ably carried out in a very natural manner. Near by is the equally attractive grounds of Mr. Ingram Whittaker at Pylewell Park. In a portion of the water garden ferns flourish in positions submerged by tidal waters at times. Rhododendrons and choice ornamental-leaved and flowering shrubs from distant countries find a home. A little to the north, overlooking Southampton Water, grows probably one of the finest specimens of the deciduous cypress, Taxodium distichum, in the country. It towers to a height of more than 100ft., has a trunk girth at 4ft. from the ground of nearly 15ft. Magnolias and camellias in the same garden have attained to great size, and the blue hydrangea also. These gardens and the extensive woods contain fine specimens of evergreen and deciduous trees, and belong to Mr. Maldwin Drummond, Cadland Park. I have seen the whole end of one dwelling-house in this district entirely covered with Solanum jasminoides within 100ft. of the cliff edge. At Hinton, Admiral Sir George Meyrick's charming old country house near Christchurch, conifers do well, also the gunnera and Fatsia japonica, respectively, grow to a large size, the last named being about 20ft. high and as far through. At the Hinton Vicarage, the vicar, the Rev. C. O. S. Hatton, raised, among other plants, Eucalyptus globulus from seed. One tree is now 50ft. high and has not been many years in attaining this size. In the gardens of Ossemsley Manor Lady Gatty has what I may term a meadow filled with irises—gems, indeed, where many others are set, too.

I have referred to a few large gardens mainly, but similar conditions obtain in small and medium-sized ones almost without number. Torquay and Devon way may be similarly referred to. Still choicer subjects flourish and the growth is a little earlier than on the mid south coast, but I think I have said enough to convince readers of THE GARDEN that the possibilities of gardening on the south coast are great and without finale.

GEORGE GARNER.

MOSQUITO CONTROL IN GARDENS

BY G. FOX WILSON.

WITH the keenly anticipated advent of summer, town and country dwellers are hoping that the climatic conditions of last year will be reversed and that we shall be able to take full advantage of our gardens and the open air. The winter and early spring months have been allotted more than their average rainfall, so that we may expect a plague of mosquitoes with the coming of warmer days. If, however, we experience a dry summer, there is still a chance that a plague of mosquitoes will appear. Certain species, such as Anopheles maculipennis and Culex pipiens (the so-called gnat), are not affected to any degree by drought, for the former breeds along the sides of ponds and lakes and the latter, a domestic species, will breed in most of the artificial water supplies used by man.

OLD TINS FILLED WITH STAGNANT WATER FORM EXCELLENT BREEDING PLACES.

No true garden lover allows his plants to become infested with insect pests without using his utmost energy to combat them, but the same people take no remedial measures to ensure against countless numbers of mosquitoes, which too often make the garden a place of torment during summer evenings.

In Britain there are about twenty-one species of mosquitoes, including the two well known genera, anopheles (the so-called mosquito) and culex (the common gnat). The blood-sucking propensity is confined to the female mosquito, which lays, in the case of anopheles, from forty to one hundred eggs singly on the surface of the water. The eggs of culex species are spindle-shaped and attached in raft-like structures, comprising as many as four hundred. The eggs give rise to larvæ (the "wrigglers" of water butts), which for respiratory purposes either lie parallel to the surface of the water (anophelines), or hang downwards in a Y-shaped position (culicines). When the larvæ are fully grown, they turn into pupæ, which are comma-shaped and breathe at the water surface through trumpet-like "ears," situated just behind the head. After a given time, depending on weather conditions and temperature, a slit appears along the back of the pupa, out of which escapes the adult mosquito.

When large numbers of mosquitoes are found in a house or garden, it is evident that the breeding place is near, the distance ranging from fifty to two hundred yards, although a mile is not too distant if human habitations are the goal.

There are two methods of control: (i) preventive, that is to prevent egg-laying, and (ii) remedial measures, to destroy eggs, larvæ and pupæ in the water and adults during hibernation and diurnal quiescence.

The chief breeding places in gardens are:

1.—Ornamental ponds, including rockery pools and fountains. Such situations are the favourite resorts sought for by Culex pipiens, and constant attention should be paid to such stagnant water supplies. All sources of stagnant water should be viewed with suspicion, especially where decomposing organic matter occurs. It is desirable that larvivorous fish, such as minnows or gold fish, be kept wherever practicable, for these

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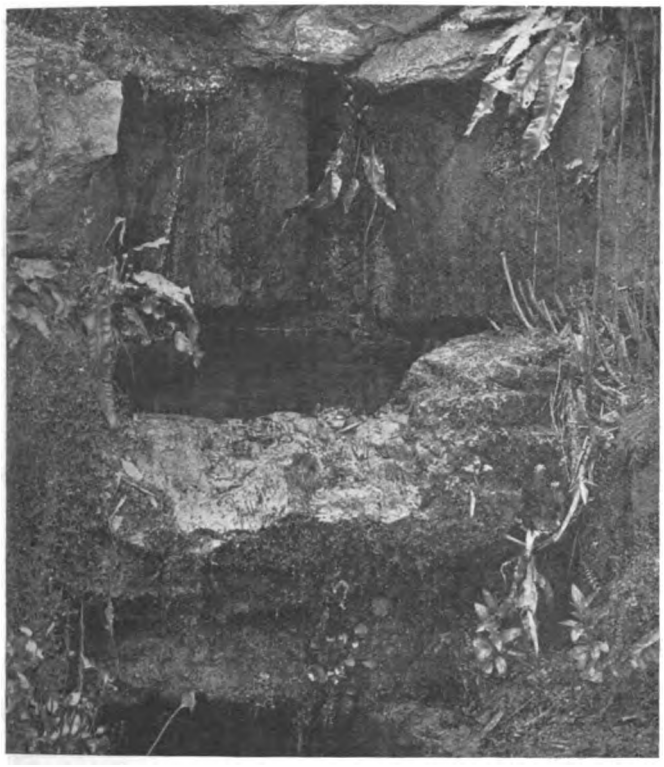


A TYPICAL ROCKERY POOL.

will devour the egg masses and larvæ, provided that the latter are unable to seek shelter beneath water plants, such as nymphæas, aponogeton and duckweed, and under overgrowing herbage, algæ and debris. All duckweed, algæ and debris should be periodically cleared so that the fish may have full play.

2.—Birds' baths. It is not uncommon to find egg masses and larvæ in water-holding garden furniture. The water should be renewed every week, care being taken that all egg masses and algæ clinging to the sides of the bath are removed.

3.—Liquid manure tanks. Culex pipiens is not particular in its choice of water in which to oviposit. Preventive measures include the covering of all such tanks with air-tight lids or muslin-covered frames. When larvæ are found, it is advisable to apply an oil film. This kills them as they come to the surface to breathe. A larvicide may be put into the water to attain the same end.

4.—Old, disused wells. In many old gardens one finds these ideal breeding places, which should be effectually screened to prevent access to the adult mosquito bent on ovipositing.

5.—Water butts and rainwater storage tanks in glasshouses. The former should be screened to exclude mosquitoes altogether, or an oil film may be applied, which will not injure the human cuticle if the water is to be used for washing purposes. Goldfish may be kept in storage tanks in glasshouses and the tanks periodically cleared of algæ and decaying organic matter.

6.—Old, empty tins, watering cans and broken flower pots. In large gardens there is usually an accumulation of rubbish, where old tins and such like are thrown and stagnant water collects. The tins should be buried and the pots broken up for use as crocks.

7.—Gutters of sheds and glasshouses. Inattention to the accumulation of stagnant water in gutters is to be deplored and is due either to broken pipes or stoppage by fallen leaves, making ideal breeding places for mosquitoes. All gutters should be kept in repair and debris removed so that the rainwater may run away without hindrance.

8.—Holes in tree trunks. Many trees, particularly beeches, have holes in various parts of the trunk, which hold water, and in which mosquitoes, especially Anopheles plumbeus, oviposit. These should be filled in with sand or soil or sprayed every ten days with paraffin.

9.—Ditches. A much neglected part of the garden is frequently a ditch, which is allowed to become overgrown with herbage, which, together with broken branches and general rubbish, holds back the water. Great attention should be paid to these situations, for they often provide ideal conditions for excessive breeding. The sides of the ditch should be steep and clear of herbage and the water allowed to run away without impediment. If the current is fast there is little danger, but if sluggish, recourse should be taken to spray every ten days with paraffin oil or apply a larvicide.

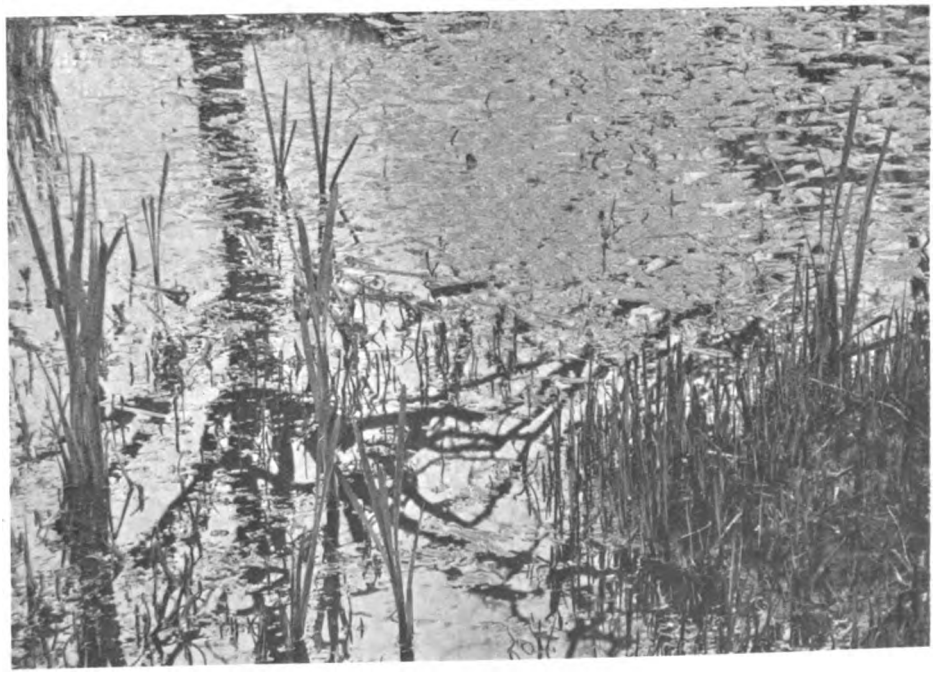
The foregoing measures apply to the early stages of mosquitoes, but there are certain precautions to be taken with regard to the adult. In the vicinity of breeding places, large numbers of mosquitoes may be encountered sheltering in coarse herbage. Periodical cutting and burning should be done.

Where the style of wild gardening is preferred, numerous adults may be caught by placing dark lined boxes, open at one end, on trees. These situations are sought for by mosquitoes as shelter during the day. The traps should be examined every morning, the adults destroyed, and the traps reset. Species of ochlerotatus are most persistent tormentors in woods and may be captured as advised.

Summerhouses, potting and tool sheds are favourite resorts for mosquitoes to shelter in during the daylight hours and also for hibernating quarters. Where numbers are encountered, it is advisable to spray with an insecticide, such as Formalin soap, or fumigate with cresyl or carbon bisulphide, previously making the building airtight to prevent the escape of the gas.

Many gardens are situated in the vicinity of vast breeding places, such as marshes, lakes, ponds, streams and pools in disused clay pits, but little can be attempted unless the matter is taken up by the local authorities and a community campaign instituted.

The remaining factors are the question of the use of deterrents and antidotes. The former, of which there are several proprietary lotions, are preferable, and the use of such oils as those of citronella or eucalyptus, applied to the wrists, ankles and the back of the neck, will prevent one being bitten. Antidotes, such as iodine and ammonia, should be applied, as soon after the bite has been received as possible, to allay irritation and prevent blood poisoning.



A FAVOURITE RESORT SOUGHT BY MOSQUITOES; A POND CONTAINING ALGÆ AND DUCKWEED.

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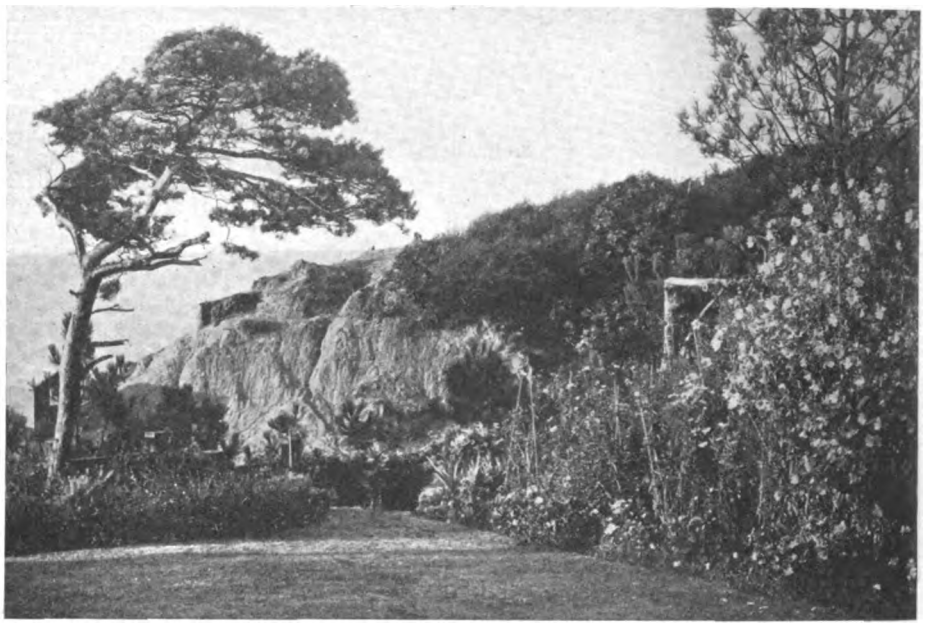
The GARDENS at UNDERWOOD, BOURNEMOUTH

THESE GARDENS SERVE AS A STRIKING EXAMPLE OF WHAT MAY BE ACCOMPLISHED WITHIN A LIMITED SPACE, AND GIVE ONE AN EXCELLENT IDEA OF THE MANY DIFFERENT KINDS OF PLANTS FROM ALPINES TO SUB-TROPICAL SPECIES WHICH FLOURISH UNDER THE CLIMATIC CONDITIONS OF THE SOUTH COAST.

SITUATED on the extreme edge of the undulated portion of the cliffs just beyond the boundary of the Borough of Bournemouth, and on the outer boundary of Dorset, is the picturesque seaside residence of Lady Wavertree. On a recent date, by the kind permission of Lady Wavertree, it was our privilege to inspect and enjoy the beauties of the gardens at "Underwood." Although not of large extent, being, approximately, about two acres, these charming gardens contain all the chief features of an extensive garden, the most striking being the fine series of rockeries. The borders are filled with the choicest subjects: colonies of heaths, rock and alpine plants, herbaceous subjects and roses are grouped all in the most appropriate parts, and, though really distinct, they all merge in a natural way. The paths, leading from one to another, broadening and narrowing as required, cannot be regarded as beginning in a number of places and abruptly ending in others, but seem to be a part of the whole, and are constructed of stone crazy work. Lady Wavertree has been indefatigable in superintending the work of carrying out her own ideas. It is only a few years since the site of these gardens was a crumbling mass of sand, gravel and clay; now they have the appearance of having been established for many years. One can, as in a fairy tale, fancy a big slice of alpine rock being suddenly transported and dropped, bodily, on this southern cliff of old England.



THE FLOWER BORDERS BACKED BY NATURAL CLIFFS WITH A VISTA OF THE OPEN SEA.

ONE OF THE MANY PATHS BORDERED BY HARDY FLOWERS LEADING TO THE SUMMERHOUSE.

Being so close to the foreshore and partially exposed to full force of the winds from the sea, as the outlook is over Poole Harbour and, more directly south, to the open sea, some protection must be provided, and this is being effected by the planting of an outer belt of Pinus insignis, evergreen oaks and black poplars. In this garden our noble dead are remembered. In one prominent corner Lady Wavertree has built a very substantial summerhouse; cut in the stone floor are the following words, "The Great War: 1914-1918. In all the fulness of their youth, They gave their lives that we might live."

It is only from this summerhouse that there is a beginning of the garden paths, and, *vice versa*, all paths seem to lead to it. In one direction there is a long path spanned by a substantial wooden pergola which is well furnished with roses and other climbing plants; on both sides the borders are filled with herbaceous plants, delphiniums being prominent occupants. On the southern side of this pergola there is a formal sunk garden, the pergola and the herbaceous plants making a charming background to it. The design of the beds is a formal one, too; in due season they are filled with old favourites: wallflowers, violas, bulbs and, in the snug corner beds, blue delphiniums. The low walls are being furnished with suitable subjects, the idea being to establish, mainly, masses of aubrietias. Here, too, in close proximity, is a big clump of Rhododendron Alice. The next path, to the south of the sunk garden, is bordered by masses of Azalea mollis, prominent among a wealth of old-world flowers; again, we look upon a fine group of Rhododendron Pink Pearl, with laburnum and roses on trellis as a background.

The next path is bordered by lavender hedges, quite low, the principal occupants of the borders being roses and lilies. In a recess the main collection of roses is grouped, and yet another path is flanked by poppies and lilies, heliotrope and standard

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pink roses. Rounding a corner one suddenly comes to low walls, nicely covered with suitable plants, dwarf shrubs at the foot encroaching on the paved way which leads directly under the imposing-looking Italian pergola; at the end of this pergola, forming a cul de sac, we see a most refreshing fern grotto, rapidly becoming clothed with ferns; turning to the right one looks down upon a very imposing bank of rocks forming a sheer drop of nearly 30ft. In this rockery, in keeping with its size, are bold masses of flowers, Lithospermum prostratum being prominent owing to its good health and free-flowering propensity.

Following the paved paths which, here, are decidedly winding and undulating, one passes over narrow shelving rocks and arrives at the moraine garden just being formed. A sun-trap, yet cool, summerhouse, designed by Lady Wavertree, is found in a corner, but one may say it is a part of this lower portion of the rock garden itself, as a portion of the cliff has been excavated and faced with stones, the flat roof being covered in with stones, also; draping the ledge directly over the house and hanging gracefully from it are trailing plants, among them, well established, being mesembryanthemum. At the lowest level there is a small pond and on its banks and the slopes above masses of yellow mimulus and irises are thriving, with a gunnera at the extreme edge of the water; the water is retained by a cemented basin and the soil around is porous.

The heath bank is delightful. The bank itself is terraced, being fronted with peat turves; the heaths are already established and look quite at home, and in a short time the whole bank will be covered. Near by is another summerhouse, on the top of a high bank, which is also terraced and planted with violets, while the rock garden Juniperus compressa trailing gracefully from the stones forms a part of the retaining walls. Peonies are doing well in various borders and colonies of pinks, Allwoodii and Mrs. Sinkins, are luxuriant.

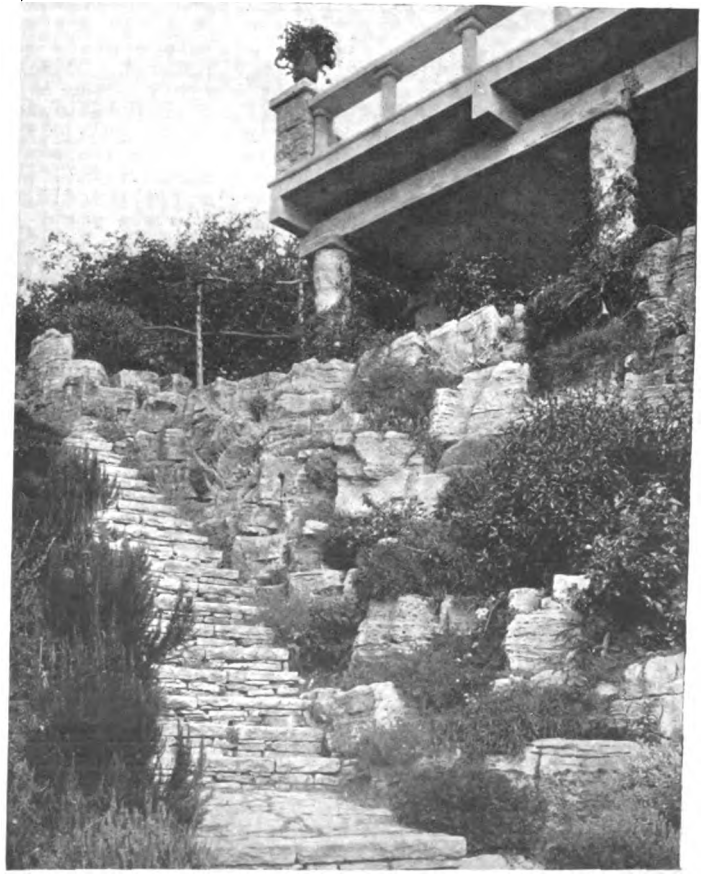
On the lawn immediately in front of the house there are a few formal flower beds filled with summer bedding-out plants, and, on the left-hand, a long herbaceous border margined with Viola Maggie Mott and backed by a high trellis covered with climbing roses. On this lawn there is a splendid standard rose of the variety Excelsa, the trusses of flowers coming freely and very large. There are many very ancient vases, stone seats and other garden ornaments; mention may be made of a splendid Venetian well-head hundreds of years old, about 3ft. wide and the same in height, the rims grooved by the action of the ropes in those long-past years when water was drawn in the primitive way of those times. It bears the coat of arms of the Lombards, the whole being in a wonderfully good state of preservation.

Lithospermum Heavenly Blue does very well and forms a prominent feature among the rocks. Other outstanding plants here were double-flowered dwarf gorse, anchusas, Picea glauca, retinospora, dwarf junipers, Picea Balsamica Hudsonica, Cistus Norbury Gem, Campanula garganica and Geum Robertsonii. Ceanothus dentata was lovely, growing in bush-form against the walls of the house.

All the main parts of these gardens are watered by an overhead system of perforated pipes, cunningly fixed in the shrubberies and, being painted dark green, are not openly noticeable. Inadequate as these notes are in doing justice to the many charms of this garden by the sea, they would be still more so if they did not include a reference to the spacious and well stocked aviary, and the wild bird sanctuary, which is a rhododendron, shrub and tree-covered corner, truly representing a portion of natural woodland.

It is, briefly, a restful garden, and our thanks are due to Lady Wavertree for so kindly explaining its many attractive features.

THE CENTRE PORTION OF THE FORMAL SUNK GARDEN.
With a charming background of pines.



THE ROCKERY BELOW THE ITALIAN PERGOLA.
Planted with bold masses of flowering shrubs.

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THE AMATEUR SHOW

IN THIS ARTICLE MANY USEFUL HINTS ARE GIVEN TO INTENDING EXHIBITORS.

WOULD-BE exhibitors of hardy plants at the coming amateur show had some assistance from nature by the wet weather of May, which gave plants a good start. Plants generally were then rather backward, but the warm weather experienced in June, up to the time of writing, has brought things along rapidly, and the majority of subjects may now be considered to be in an average state of development for the time of year.

To those who intend exhibiting in the rose classes, work of primary importance a few days before the show will be that of shading the blooms of varieties of warm shades and tones of colour, such as flame and apricot, many crimsons, too, are apt to lose richness of colour and attain the undesirable purplish tint during hot sunshine. The shading must not, however, be dense or more harm than good will be the result. No part of the plant except the bloom must be shaded.

In the tea and hybrid tea rose classes, unless blooms are very plentiful, it will be necessary to try to hold back those which, if left to themselves, may be too forward by the date of the show. This is done by tying the blooms, to prevent premature opening, with the aid of a soft material, such as budding cotton. The time to do this is immediately the first row of petals have expanded. This must be done in such a way as to allow the bud to expand. The easiest method is to give the first knot a double twist, and no further knotting is necessary. This tying will help to retard the opening of the blooms and keep them clean.

Roses for the rambler classes should be chosen, if possible, from the double varieties, as they travel and last, when cut, better than singles. Long stalks, with good sprays and clean, healthy foliage should be chosen. These must be gone over and any old blooms removed, also those with discoloured stamens.

PACKING AND TRAVELLING.

Undoubtedly the best means of taking cut flowers to shows is in water. The small amateur will not, perhaps, be able to do this. It is the method usually adopted by the big exhibitor, whether amateur or trade grower. For this purpose deep boxes or skeleton boxes, with clean canvas sides and top are used. Holed bottoms, into which tins or tubes can be fixed, will be necessary.

For packing dry, flat boxes, such as are used for packing flowers for market, will be ideal. The length and depth of box will be governed by the subjects to be packed. These range from 18ins. to 6ft. in length, and 4ins. to 8ins. in depth. The depth allows for one layer only.

CUTTING.

The best time for cutting outdoor blooms of any kind, during hot weather, is at break of day. The blooms will by this time have had a chance to recover from the effects of the previous day's sun. This early cutting may not, however, be possible and often has to be done the evening before, or even the morning preceding the day of the show. Whenever the cutting is done, receptacles filled with water must be in readiness and the stems placed in immediately. As roses have to be shown in vases, they should be cut with long stems. Avoid cutting into two year old wood as this may cause early fading. One or two hours should be the minimum time for stems to be in water previous to packing in boxes. The blooms will be better kept in a fairly light and airy room free from sun, rather than in a close, dark room.

In choosing show blooms, quality should be observed throughout. It may be taken for granted that freshness, size of bloom, according to variety, colour, healthy foliage, length of spike in certain kinds and uniformity in each vase will be telling points. Sweet peas should have quality and substance, with four flowers well placed on a 12in. to 15in. stalk. A good delphinium should have a spike which scarcely varies in size from top to bottom; the individual flowers large, closely placed, yet not crowding each other, and completely hiding the central stem. In gladioli the first blooms at the base of the spike should be fresh with as many expanded blooms as possible. This also applies to antirrhinums, and is preferable to having to remove lower faded blooms. Carnation blooms should be as large as possible for the variety, with an unburst calyx, long wiry stems and perfect foliage.

PACKING

All flowers should be packed dry, not damped, as is sometimes done. The boxes must be well lined with clean tissue paper. Sticks the exact width of the inside of box, wrapped round with soft paper, must be prepared. These are for the purpose of tightly keeping each layer of blooms in position. It will be necessary to place one in the bottom to support the first layer. In the case of such as roses and carnations, the stick should be placed so that it comes immediately at the base of blooms. When the first layer has been placed in position, the stems are held down tightly by another wrapped stick, and in such a way as to form a bearing for the next layer, and so on, till the box is filled.

Somewhat different arrangements have to be made to support such as delphiniums, antirrhinums and gladioli. For the former, long boxes will be essential, as the stalks must not be shortened. Sticks should be placed in the packing boxes about 3ins. from the bottom and kept in position by tacking or nailing from the outside. The stems are carefully laid on these and tied in several places, three at least, top, bottom and centre.

The tops of certain flowers, such as delphiniums and antirrhinums, have a habit of curling upwards when packed. The tying near the top will probably prevent this. Another means of prevention is to arrange, by labelling, etc., for the boxes to travel end up. If several cases are tied together, this can be easily arranged. It seriously detracts from the appearance of an exhibit if the flowers have the tops curled or bent.

WIRING.

It may be an advantage to do a certain amount of wiring before packing. This would help to straighten out any kink in the stem and prevent others during transit. No mention is made in the schedule about wiring, so that it can be taken as permissible to stage wired blooms. This, however, should only be done if absolutely necessary. A natural arrangement should be aimed at and wired blooms will, no doubt, be noticed by the judges as not being in the best taste.

ARRANGEMENT.

Immediately on arrival at the R.H.S. Hall, positions should be ascertained, vases procured and filled with water, the flowers unpacked and placed in the vases temporarily, to allow them to recover.

In most cases, before finally arranging, it will be necessary partly to fill the vases with some foliage or stems, such as rushes. This must not show above the mouth of the vase. The object of this is to enable the blooms to be arranged and kept in position.

Twelve sprays of sweet peas will make a nice vase without crowding. A few pieces of good, healthy foliage may be allowed to hang over and partly hide the vase. A few tastefully disposed growths should be arranged with the flowers, but not in such a way as to hide any.

For the delphinium and gladiolus which have to be arranged three in a vase, a triangular arrangement is the only one to show off each spike properly, and more will depend on the quality of flowers than the way they are set up.

POT PLANTS.

The packing of begonias, gloxinias and orchids will require much care. For these somewhat special attention will be necessary.

For the majority it will suffice to stake securely according to the kind of plant and to insert three or four stakes around the edge of pot long enough to stand well above the plant when tied up. The foliage and flowers are then carefully tied to the stakes and the whole wrapped round with soft paper.

See that the plants are well watered before packing and that all pots are washed clean. Plenty of good packing material should be used and the plants and pots so tightly packed that there will be no danger of their shaking about in transit.

Strong boxes should be used, but not so large and heavy, but what two men can comfortably move them about. Strong handles should also be provided. ARTHUR J. COBB.

WEAPONS OF GARDEN WARFARE

INSECTICIDES FOR THE SUMMER OFFENSIVE.

GENTLE and peaceful is the art and craft of gardening; nevertheless, it were folly to disguise or to ignore the fact that there is no peace in a garden where there is no warfare against the enemies of plant life.

Season by season the prospect changes, and the enemy of to-day and to-morrow demands other materials and other methods of application than those of yesterday, and the importance of prompt activity at the dawn of summer is the greater by reason of the rapid movement and incessant industry of the varied pests of the summer months.

There is something rather formidable about a tabulated list of insect and fungoid pests which may invade the garden, the orchard and the greenhouse, and sometimes methinks too much stress upon the numbers and variety of destructive pests the gardener may have to contend with and too elaborate instructions regarding preparation of chemical and other mixtures tend to convey the impression that gardening is more of an anxiety and weariness of the flesh than an agreeable pastime or beneficent occupation.

No good purpose would be served by attempting to minimise the folly of neglecting to combat the enemies of plants, but it may certainly be urged

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that successful warfare is brought well within reach of every garden owner, for both insecticides and fungicides are very plentifully offered by firms who are equipped for faultless manufacture of most reliable fluids and powders which require no more preparation than dilution with water.

Apart from the quite common and easily conquered pests, such as green fly and caterpillars, and the ordinary rusts and mildews, a garden seldom has an extensive range of other foes, so it is by no means always essential to keep an elaborate chemical chest, the wiser plan being to make a point of having a good general purposes insecticide and something sulphurous for common leaf diseases. When some strange and unknown enemy makes its appearance, it is unwise simply to try this or that and await results, for the great need is to suppress both insects and diseases at the earliest opportunity, and the first step should be to learn the identity of the foe, for that will help in deciding what will best cope with it. A particular pest may habitually infest one garden, while it remains practically unknown in another. One season will bring a great plague of an insect, while another is free or has quite a different intruder, but the "Service for Readers" scheme of THE GARDEN affords the opportunity for every reader to ascertain what pest is worrying his plants and what will worry the pest.

There are many insects which pierce the epidermis or skin of a leaf and suck the sap from the cells underneath. A poisonous insecticide which simply coats the surface of the foliage is unlikely to prove effectively destructive of such insects, and resort has to be had to preparations which kill by contact. There are, of course, many substances which are of a caustic nature which would kill the majority of soft-bodied insects, but in so doing they would also damage and frequently destroy soft foliage and young growing shoots, and cannot on that account be used on plants in full activity. Fortunately, however, cold fluids of an adhesive nature which will spread over the hides of insects, creating a gelatinous film, prove fatal, while, practically speaking, harmless to the plants. In some cases the fluid dries, and ensheaths the insect in a hardened shroud which hampers movement, while in others the greasy or sticky film seals up the pores and respiratory organs of the insect and suffocates it.

Among insecticides of this type saponaceous sprays occupy an important place. The old, well tried Gishurst Compound made by Price's Patent Candle Company, Limited; the equally well known and reliable "Abol" made by Abol, Limited, Paddock Wood, Kent; McDougall's Katakilla, made by Messrs. McDougall and Robertson, Limited, formerly of Manchester, now of Berkhamstead; "Kilzall," of the Stonehouse Works Company, West Bromwich; V2 Fluid, the summer wash of Messrs. W. Cooper and Nephews, Berkhamstead, are a few of the leading proprietary insecticides of the "contact" character which may be used for all the sucking insects, and also for caterpillars.

For the latter, and also for weevils, bugs and a host of biting, gnawing and chewing insects it is of great advantage to use a spray which is either poisonous or acrid, and that is where nicotine and also quassia prove to be extremely serviceable.

The nicotine washes of the horticultural sundriesmen are carefully compounded, under the direction of skilled chemists with up-to-date laboratories for determining strength, purity and general efficiency. Messrs. Corry and Co., Bedford Chambers, Covent Garden, London; G. H. Richards, Limited, Borough High Street, S.E.; J. D. Campbell, Lund Street, Cornbrook, Manchester; J. Bentley, Limited, Barrow-on-Humber, Hull; Darlington and Son, Limited, Hackney, London; Robinson Brothers, Limited, West Bromwich; Edward Cook and Co., Limited, Bow, London, E., all make a feature of nicotine washes, and although nicotine is an expensive commodity, it is extremely economical in use because highly powerful; while for fumigating greenhouses XL All Vaporizer, McDougall's sheets and cones, Abol Fumigating Shreds, Darlington's Auto-Shreds, Corry's "Lethorion" Fumigators, Bull's Shreds, the Briton Ferry Chemical and Manure Company, Limited's Auto-Shreds and several other proprietary articles of a similar nature are among the greatest boons to gardeners, and the most dreaded terrors of the insect world.

One might extend references to insecticides to great extent, but the Garden Supplies, Limited, Cranmer Street, Liverpool; Messrs. Murphy and Son, Limited, Mortlake; Messrs. T. Vickers and Sons, Limited, Wigan; The Chemical Union, Limited, Ipswich; and the Strawson Chemical Company, Limited, 79, Queen Victoria Street, E.C., are a few firms to whom horticulture is indebted for cleverly prescribed death-dealing weapons of gardening warfare, and even that troublesome and tenacious pest of tomatoes, salvias and many other plants, white fly, can be worried out of existence by careful use of one or other of the advertised white fly antidotes. A. J. MACSELF.

CORRESPONDENCE

VIBURNUMS CARLESII AND BITCHIUENSE.

SIR,—As a friend of both your correspondents, may I venture to suggest that the difference of opinion between Sir H. Maxwell and Mr. F. Stern as to the merits of Viburnum Carlesii and V. bitchiuense (not bitchuenense) has its origin in the fact that the specimens of the latter at Monreith are obviously not of the best form of a variable plant? Were it otherwise, the flower buds of the plants there would certainly have that engaging rose tint which Mr. Stern—and others—find so attractive, and Sir Herbert Maxwell does not detect.

This viburnum grows wild on the mountains of Bitchiu, a province of western Japan, and was named by the Japanese botanist, Makino, in 1902. It is often said to be inferior to V. Carlesii, with which at one time it was confused by importers, who sent it here in moderate quantities; and so as a small plant, it usually is. But a comparison of two plants of such different habit is hardly fair. There are specimens of V. bitchiuense in this country as much as 10ft. high, of free branching habit, and when the fragrant, rose-tinted flower buds open in spring among the bronzing leaves, he would be a bold man who would pronounce it an inferior to Carles' species, so persistently miscalled Carlesii. It has the great advantage over the latter of rapid growth, and, like V. fragrans and Osmanthus Delavayi. has evidently not reached its maximum yet in Britain.

Sir Herbert Maxwell expresses the view that V. Carlesii is the choicest of the deciduous species, and his opinion is entitled to every respect. But even doctors differ, and there are good judges who prefer V. fragrans—for more reasons than one.—A. GROVE.

A PRONOUNCING DICTIONARY.

SIR,—In your issue of May 16th, a correspondent, C. F. Gray, writes about the pronunciation of botanical Latin and advocates a small dictionary being compiled. As a matter of fact, in 1909 the *Gardeners' Chronicle* published a little book for 1s., called "Pronunciation of Plant Names." It is very simple, and, I believe, correct, except for making "erica" with the "i" long; as it is derived from *ericius*, a hedgehog, it should certainly be short.—C. G. O. BOND.

FRAGRANCE IN THE GARDEN.

SIR,—The article on "Fragrance in the Garden," by Mr. H. W. Canning-Wright, published in THE GARDEN, February 28th, 1925, is exceedingly interesting, and deserves the attention of all raisers of new varieties of plants. My few observations for some years past on the fragrance of plants clearly show that such plants as roses and sweet peas—that is, most of the new or modern varieties—are greatly wanting in that delicious perfume for which older varieties were famous. We have in many of our Australian plants, delicious fragrance—quite different from the many odours of European, Asiatic and American plants—such as some species of boronias, acacias, species of epacrids, eucalypts and many others needless to refer to here. My object in writing is to refer to a plant, Cestrum nocturnum, which, I think, should grow very well in warm, sheltered places in Great Britain. It bears profusely tube-shaped, long, yellowish green flowers which at nights emit wonderful and delicious fragrance, something like that of the well known night-scented stock, but infinitely better and more profuse. The plant is a dense-growing shrub which attains a height of about 10ft. or so, and succeeds well in almost any kind of fairly well drained soil. About the suburbs of Sydney it succeeds admirably with little or no care.

I may add that one or two species of xerotes—common about the suburbs of Sydney and which grows about sandstone rocks—the foliage of which resembles somewhat that of Iris stylosa, have very peculiar fragrance. In the old days of the colony the colloquial name was "Rum-bottles," for want of a better I suppose.

I have been a subscriber to THE GARDEN for more than fifty years, and have a great regard for the good old publication.—WALTER S. CAMPBELL, *Sydney, New South Wales.*

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THE FLORAL DISPLAY AT YORK GALA

IDEAL weather favoured this interesting northern event. Cloudy skies and a cool, northerly breeze following the recent heat wave must have made the heart of the exhibitor glad. It was also more comfortable from the visitors' standpoint, for the marquees were never overpowering and oppressive and the exhibits remained in good condition.

There were two large tents filled to their utmost limits with the choicest productions of the country's nurseries and gardens, and well known growers from far and near had spared no expense to bring of their best. The crowds that filed past the stands in a continuous stream proved that interest in all branches of horticulture is very strong in the north and the public patronage must have set at rest all doubts as to the future success of the Gala.

THE ROCK GARDENS.

These were a special feature, and foremost among them was a splendid exhibit by Messrs. James Backhouse Nurseries, Limited (York). The chief point in this striking erection was an extra fine waterfall. The rockwork was composed of water-worn mountain limestone. Very attractive were the Japanese maples and various deciduous trees, among them being the golden oak and Persian plum. There was a mound of heather and silver birch in the centre. A good collection of dwarf rock conifers and fine banks of kalmias and rhododendrons, together with groups of rock roses in various colours were prominent. Silver funkia was placed along the water's edge. Primula Bulleyana and Beesian hybrids were in excellent condition. There was a fine background of spruce and evergreens. A large gold medal was awarded for this exhibit.

Mr. Pickering, a local specialist in rockwork, won two first prizes, one for a charming rock and water garden and the other for a water garden. In the former there was a waterfall, with a background of Japanese maple and copper beech. Campanulas, lychnis, sedums, rock roses, thrift and primulas were well grown and tastefully arranged. Mimulus, irises, thrift, rhododendrons and the Chinese buttercup were chiefly used in the water garden.

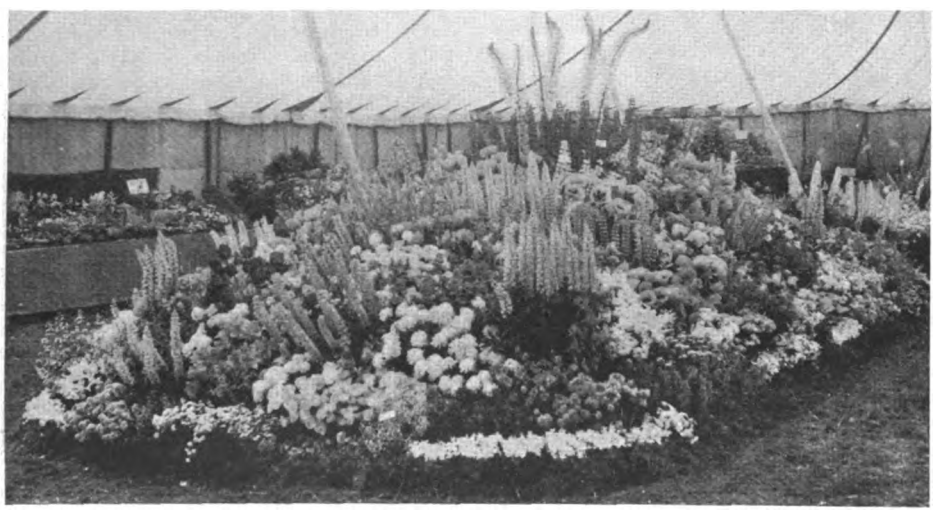
Messrs. Wilson and Agar had a very pretty formal garden, with a paved terrace and two flights of steps. There was a semi-circular pool leading to a fountain and at the back of the exhibit an original gargoyle in the form of a frog in lead on a raised wall. The chief feature in the setting was a neat arrangement of Iris Lord of June, lupins, delphiniums and a number of uncommon alpines. A low wall surrounded the whole garden and there was a foil of fine specimen box.

Mr. P. Gardener had an excellent water garden in which were many choice primulas and a fine lot of Iris Lord of June. It was banked with shrubs, Japanese maples and conifers. His rock garden was built with waterworn limestone and planted with choice varieties of thrift, dianthus, heuchera, brooms and aquilegia.

Other notable rock exhibits were those of Messrs. Maxwell and Beale, and a local exhibitor, Mr. J. H. Winn.

HERBACEOUS EXHIBITS.

These occupied the same marquee as the rock gardens. They were large and comprehensive and contained the choicest seasonable varieties. Messrs. Harkness and Sons, whose exhibit we illustrate, won first prize, and in this fine display lupins were a prominent feature. Messrs. Gibson also had a choice selection of plants in great variety, and Messrs. Longster's exhibit was not far behind. These three firms are regular exhibitors at the show.



THE FINE EXHIBIT OF HERBACEOUS PLANTS STAGED BY MESSRS. HARKNESS.

On many other stands, notably those of Mr. J. D. Hutchinson, Kirbymoorside; Mr. G. A. Millar, Messrs. M. Prichard and Sons, Messrs. Baker's and Messrs. Toogood's, herbaceous plants were to be found in fine condition.

ROSES.

There has never before been such a fine display of roses at York. There were so many that an overflow tent had to be provided. Messrs. Alex. Dickson and Sons, Limited, showed several new varieties, one of the best of which was Simon, a dazzling red decorative rose. It is more than semi-double, very free flowering, and we understand that it has an ideal bedding habit. Duchess of York, previously shown as Moyna MacGill, is a striking bicolor, and Dame Edith Helen is very sweetly scented, deep rose pink in colour and one of the best for all purposes. On this stand the popular varieties, such as Betty Uprichard, Lady Inchiquin, Los Angeles, Mrs. Herbert Stevens and Golden Emblem were well shown, and the 1925 novelties, Scarlet Glory, a free flowering decorative rose that may be described as a scarlet Donald McDonald; Barbara Robinson, deeper and richer than Clarice Goodacre, with all the latter's good qualities; Climbing Sunstar, which has the real climbing habit; and Saltaire, a deep crimson with strong growth.

Mr. Elisha Hicks had some very fine specimens in his prize-winning stands, and his best varieties were Ophelia, Clovelly, Mrs. H. Winnett, more pleasing in colour than one usually sees it, and Mrs. Herbert Stevens, which he invariably grows well.

Mr. Prince had a very fine collection and Allan Chandler was particularly well shown. This is a splendid pillar rose, rich in colour, which does not fade. There was also an interesting group of Rosa hemisphærica, a lovely yellow rose, on this stand.

SWEET PEAS.

Nothing finer in sweet peas could be wished than the gorgeous displays of bloom set up by Messrs. Robert Bolton and Son, Messrs. Dobbie and Co., Messrs. Alex. Dickson and Sons, and Mr. Henry Eckford. All the popular varieties were in profusion and also many notable novelties.

Messrs. Bolton and Son received a large gold medal for their huge display in which Gold Crest, Black Bess, Peggy, Royal Pink, Wizard, Picture, Ivory Picture, Matchless, Wembley and many others were admirably staged. The first three varieties were awarded a certificate of merit.

Messrs. Dobbie and Co. had Miss California, Powerscourt, Royal Sovereign, Youth, Ruby, Mary Pickford, Grenadier and Royal Purple in fine condition.

Messrs. Dickson's four novelties, Magnet, Crusader, Dainty Maid and Mermaid, were well shown, along with many other varieties.

Mr. Eckford had some well grown exhibition flowers in many popular shades and his new ones were Mrs. John Curwen and Betty.

CARNATIONS AND PINKS.

Mr. Engelmann had a wonderful display of carnations, and his new variety, Red Laddie, received a certificate of merit. Other new kinds were Dainty and Corola Striata, a striped form of Carola. In this exhibit White Pearl, Topsy, Peerless, Delice, Laddie, White Enchantress, Saffron, Maine Sunshine and Tarzan were all in excellent condition.

Mr C. H. Herbert had a neat stand of his famous pinks, among which were good vases of Bridesmaid, Model, Mrs. Giffard Woolley, Mrs. G. Walker and Queen Mary. Fire King, a dazzling orange scarlet, was also noticeable on this stand.

ANTIRRHINUMS.

Messrs. Sutton and Sons had a magnificent stand of antirrhinums, among which we noticed Giant Yellow, Eclipse and Lilac Queen in tall kinds, and Orange King, Buff Beauty and Canary Yellow, in the intermediate section.

Messrs. W. H. Simpson and Sons also had fine antirrhinums and these included good specimens of Lady Roberts, Empress, Golden Gem, Appleby Matthews and Sybil Eckford.

OTHER EXHIBITS.

The orchids, as usual, were outstanding, and the leading firms had their choicest varieties in excellent condition. Violas were well shown by Mr. Arthur H. Todd and Mr. R. V. Roger. Very interesting was the display of fruit by Messrs. Chas. E. Simpson and Sons, as were also Messrs. Rivers' fruit trees in pots. Messrs. Lowe and Gibson had some fine delphiniums grown from seed of their noted "British Birds" strain. On the stand of Messrs. Storrie and Storrie there were some very interesting subjects, the best being Begonia Narcissiflora, with a narcissus-like trumpet, croton-leaved coleus, and some fine aquilegia. The latter were also very well shown by Mr. V. C. Vickers, who exhibited an interesting new raspberry named The Viking.

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SIMPLE GARDENING

CALCEOLARIAS AND CINERARIAS.

I HAVE recently been much interested in collections of these charming flowers in several parts of the south coast. I think they are very interesting flowers for the amateur, as well as the professional gardener to grow, The colours are so varied and rich and the blossoms come at a season when conservatory flowers are scarce. As a youth I paid many visits to a neighbour, an amateur, who possessed a very old brick frame, which held a great attraction for me. I saw in it some herbaceous calceolaria plants which always appeared nicely covered with moisture, like dew on the grass, and those plants did remarkably well because their surroundings were so suitable. On this experience I acted in after years when I began, seriously, to make gardening my life work, and refer to it here for the benefit of my readers who may not possess much knowledge of these plants and their treatment. The calceolaria thrives in a quite cool position, in fact it needs a cooler one than the cineraria; its roots are finer than those of the latter and yet I have found my best plants result from pottings in quite heavy loams in which only a small quantity of leaf-soil has been mixed. The present is a suitable time for sowing seeds of both kinds of plants. The seeds should be sown in pots or pans, very thinly, the calceolaria seeds being simply pressed into the level surface of the soil after the latter has been watered. Of course, a hot position is bad for both seedlings and plants, and failing such for the garden frame, I would create such a position even if I moved a frame to the north side of a row of peas or runner beans. Full light should reach the seedlings, but not any direct rays from the sun. First transplant the seedlings round the sides of small or 6in. pots and then pot them singly in 3in. ones.

BULBS IN GRASS AND WHEN LIFTED.

There are people who love bulbs in the flower garden, but do not grow them because they interfere with the summer bedding-out arrangements. If the latter is of more importance than the bulbs, then the bulbs are sure to suffer a little, if grown. But there is a right way to treat the bulbs and few cultivators carry out this treatment as it should be. They generally lift the bulbs quite early and "heel" them in in some out of the way border for several weeks, thus exposing them to the influence of the moist soil, which causes new roots to grow prematurely and matters are made worse if rain comes in the meantime. In due time these bulbs are again lifted and re-planted and this work cannot be done without serious destruction of the new, fleshy roots. The better plan is to lift the bulbs as late as possible consistent with the forwarding of the work of bedding-out other kinds of plants. No doubt the great majority of the bulbs are now lifted and many of them are being neglected. Collect every one and place them in boxes or on the floor of some cool shed—an open shed will be the most suitable. Do not forcibly remove the tops nor any soil adhering to the roots. These bulbs are to remain in position till they have gradually and thoroughly dried, when the stems may be removed and the plump, glossy-looking bulbs should be placed in paper bags. The bulbs in pots should be left there till properly ripened, and to ensure this the pots must be placed on their sides in a sunny position all being kept quite dry. The leaves of bulbs grown in grass and woodland should be allowed to wither naturally before any trimming, for the sake of tidiness, is done.

STAKING PLANTS.

It is quite an accomplishment to be able to stake growing plants so that their natural form will not be altered, and, of course, not marred. It does not matter much whether the subjects are border or climbing plants, but if care be needed in dealing with one class more than another, it should be given to the border

plants, as climbers are always persistent in trying to get out of bounds and so faulty tying is not as apparent as in the case, say, of herbaceous plants. Where stakes are used they should be painted dark green and green tying material used, then, if the supports are well placed and the tying is neatly done, the general effect will be pleasing. It is not a question of number of stakes, but of their disposal, as few as possible should be used consistent with efficiency. In some districts stakes are difficult to obtain, in others they are plentiful. We will suppose that they are scarce and only one can be used where three should be. The single stake should be placed at *b*, at the side, or outer edge of a branching plant or clump of them. The raffia or string should be made secure to the stake, passed round the clump and tied near the stake, thus holding all stems loosely, but firmly. The three stakes may be placed as shown at *d*, *d*, *d*; the string placed circle wise all round the clump and, if the latter is massive, through it from stake to stake, as shown at *e*, *e*, *e*. It is wrong to fix a single stake in the centre of a circle *f*, as at *g*, and showing at *h*, tied at *i*, as the result would be unsightly specimens. When staked the clump should look like the one *j*. Tying climbers to rough stakes is easily done if the strings are passed round them about big knots as shown at *k*, *k*, *k*.

HOW TO MANAGE GLASSHOUSES IN SUMMERTIME.

I am induced to include this subject in my collection of notes because I have seen so many glass structures mismanaged year after year. Some are totally neglected; others are not shaded, neither are they properly ventilated, nor the plants in them suitably treated. In the winter time it is pleasant to enter a warm greenhouse; in midsummer it is torture to do so when the sun is shining on a mismanaged one. I need not repeat why it is a torture. If the roof glass and, maybe, a portion of the sides and ends be slightly shaded, either with permanent or temporary shading material, the floor duly damped, the plants watered as they require it and the ventilators manipulated according to the prevailing weather conditions, a visit to the occupants would be just as pleasant on a really hot day as in the depth of winter. Generally, if it is unpleasant for one to be under glass on a hot day, it is equally bad for the plants there. From the end of June to the end of August, night ventilation is beneficial to miscellaneous greenhouse and conservatory plants, and this night airing should be duly increased early in the day in very bright weather. Morning and early evening waterings are best; avoid mid-day ones, because the roots are warm, and pipe, well or cistern water is much colder and would cause a check; but water then rather than allow the plants to suffer, using water that has been placed in vessels in the same house. A mid-day damping of borders, under stages or floors, is highly beneficial to the plants.

GEORGE GARNER.

CORYLOPSIS PAUCIFLORA.

DURING early spring this delightful little shrub was most attractive. It is of somewhat spreading habit, growing about 4ft. high, but the plants I have seen have not exceeded 3ft. The flowers are produced on twiggy, leafless branches, these being practically covered with primrose yellow blooms three-quarters of an inch across. They are usually in pairs, and hang down, so to see them at their best they must be viewed from beneath, which suggests an elevated spot on the rock garden. In the milder parts of the country it will succeed, and should be afforded a position protected from the north-east and east winds. Any good garden soil will suit it. C. pauciflora is allied to hamamelis, but it is not so hardy.

T. W. B.

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CONSERVATORY AND GREENHOUSE

GILIA CORONOPIFOLIA. — This beautiful biennial is deserving of more general cultivation for furnishing the conservatory, and for this purpose seed should be sown now in a cool greenhouse.

When fit to handle the seedlings should be pricked off singly into thumb pots, affording water carefully until they are well rooted. Their next shift should be into sixty-sized pots, in which size they should be wintered. During the winter they require very careful handling, for, in common with many Californian plants, damp proves fatal to them during our sunless winter months. A shelf well up to the roof glass in a light, airy house is the most suitable position for them, and no more water should be given at the root than what is necessary to keep them from suffering. It is also important that the foliage be kept dry. Early in the year they should be ready for a shift into their flowering pots, which may be 5in. or 6in., according to the strength of the plants. When well established and under improved weather conditions they will take increased supplies of water, but care must always be exercised with this plant.

REHMANNIA ANGULATA.—Where this plant is grown for conservatory decoration seed should be sown this month in a cool greenhouse. When fit to handle, the seedlings should be pricked off singly into small pots, afterwards potting them on as they require it. As this plant is nearly hardy, it may be grown successfully in a cold frame. Well grown examples will require 7in. or 8in. pots for their flowering size. This plant is very useful, as it flowers over a long period; there is also a fine white variety of it.

BRUNFELSIA (FRANCISCEA) CALYCINA and its varieties eximia and macrantha are generally regarded as stove plants, and are treated as such. They, however, succeed perfectly in an ordinary greenhouse during their flowering period, flowering in wonderful profusion for several weeks. B. macrantha is undoubtedly the best one to grow for this purpose. Cuttings root readily in a warm propagating case. Throughout the growing period they are best kept in an intermediate house, while during the winter they should be kept somewhat dry at the root, but must not be allowed to suffer in this respect. This plant has the advantage of flowering early, plants in small sixty pots flowering freely. In two or three years good useful plants for the stages can be obtained. They also have the advantage of being long-lived, for with annual re-potting the same plants may be grown in 6in. or 7in. pots for a number of years. On the other hand, if so desired, they may be grown on to form large specimens. It is also an ideal plant for planting out in a well drained bed or border in a warm greenhouse. B. americana is quite distinct from the other species, having sweet-scented flowers which are yellow when they first open, afterwards changing to white. This plant is worthy of more general cultivation, is easily propagated by means of cuttings, and succeeds under the same treatment indicated for the other species.

SCUTELLARIA COSTARICANA.—Than this plant, with with its scarlet flowers tipped with gold, there are few more brilliant for the decoration of the greenhouse. Cuttings root readily at any time in a warm propagating case. They are best grown in a temperature of 50° to 55°, and as they approach their flowering period should be gradually accustomed to cooler conditions. The young plants should be pinched once or twice to induce them to throw strong shoots from the base, and these should be allowed to run up without stopping. Good examples may be flowered in 5in. or 6in. pots. This plant grows freely in any good potting compost. S. violacea and S. coccinea treated in the same way are also excellent for the greenhouse. They are all subject to attacks of white fly, which must be prevented by fumigation with hydrocyanic acid gas or some other approved remedy.

ISOLOMA HIRSUTUM, which has been in flower for at least two months, is another excellent plant for the greenhouse, and by rooting successional batches may be had in flower all the summer. Cuttings root readily in a warm propagating case, and should be grown on in a temperature of 50° to 55°. To do them justice they should be placed in 6in. pots for flowering. Well grown plants will in time attain a height of 3ft. to 4ft. At this stage they may have a shift into 8in. pots, in which they make fine specimens for standing in beds in the conservatory. If given proper attention this plant will flower for at least six or eight months. J. COUTTS.

LABOUR-SAVING IN THE GARDEN

A USEFUL ATTACHMENT FOR A LIGHT LAWN MOWER.

THERE are now a number of efficient edge trimmers on the market which combine trimming and truing the edge of the lawn, and are a great improvement on the old-fashioned edging knife and long-handled shears. Even with the use of these the last few inches at the edge of the lawn are troublesome to cut if a side wheel lawn mower is used. It has to be done either by hand or else the lawn mower cuts it with one of its wheels partly off the lawn, a state of affairs which is neither good for the edge nor for the mower. A patent attachment is now being sold by a number of firms. It is known as Slatter's Patent Front Runner, and enables a side wheel mower to be used for cutting close up to the edge of a lawn.

SPRAYING ON A SMALL SCALE.

During the early summer months to keep down biting and sucking insects, which attack fruit trees of all kinds, spraying is essential. Aphis particularly become very active, and unless kept in check in the early stages of development, much damage will be done to the plants later on. Regular and timely spraying as preventives rather than cures should be aimed at. An efficient spraying machine suitable for the kind of work and the amount it is required to do should be in readiness at all times. Many amateurs do not wish to buy, and do not need a large knapsack machine. These are unnecessarily heavy, and a smaller make, even though it has to be refilled oftener, is much more convenient for use in a moderate-sized garden or in the amateur's greenhouse. The Vermorel pneumatic hand sprayer is ideal for such a purpose and of great service in every type of spraying. It is light, easy to manipulate and can be obtained in two sizes, The larger is made of brass and the smaller of copper. The capacity of the machines are 3½ and 2½ pints respectively, and they weigh 5½lb. and 2¼lb. When pressure has been established all the contents are expelled in a continuous spray.

A TIME SAVING DEVICE.

Peach disbudding, nailing up young shoots of wall fruit and countless other odd jobs in fruit culture which mean a cut here or a tie there are tasks which take up a considerable time. Only a small area can be reached when the ladder is in one position, and to attend to the lower portions of the trees a shorter ladder has to be used. Being obliged to use a different type of ladder for the lower branches and the constant moving which is necessary involve the loss of a certain amount of time. And, again, a ladder which is suitable for resting against a wall cannot be used, for instance, in the pruning of the top of the branches of bush apples. For this a step ladder is necessary. A most convenient ladder which combines both types is known as the Handy 2 in 1 Ladder, and it certainly is a very useful and time-saving invention, to say nothing of the money saved by being able to make one ladder do the work of two. This ladder is hinged in the middle, the top half bending over and forming a step ladder. As it thus has steps on each side when in the step ladder position, a larger portion of the tree can be reached before moving again. The hinge is made of heavy unbreakable steel, and automatically locks itself in both positions and is absolutely secure. When the ladder is used as a pair of steps the top step is extra wide and can be used for standing a bucket on. There are many times when such a ladder will be useful—in the vinery, for pruning, for training wall fruit and for reaching the shelves in the greenhouse are only a few instances.

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IN ALL GARDENS, BE THEY EVER SO SMALL, A CORNER SHOULD BE FOUND FOR THE OLD FASHIONED SWEET SMELLING SHRUBS AND FLOWERS. BUSHES OF ROSEMARY AND LAVENDER WITH THEIR TIME HONOURED CHARMS, DRIFTS OF CLIMBING ROSES IN THEIR FULL SUMMER GRANDEUR, WITH STATELY SOMBRE IRISH YEWS AS SOLEMN SENTINELS, MAKE AN ENCHANTING SETTING FOR ANY WILD GARDEN.

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The ROCK GARDEN in EARLY SUMMER

WITH A LITTLE CARE AND ATTENTION DEVOTED TO THE INMATES OF THE ROCK GARDEN IN THE EARLIER MONTHS OF THE YEAR, THE RESULTS ACHIEVED IN THE SUMMER SEASON IN THE SHAPE OF A WEALTH OF COLOUR AND BLOOM ARE TRULY ASTONISHING.

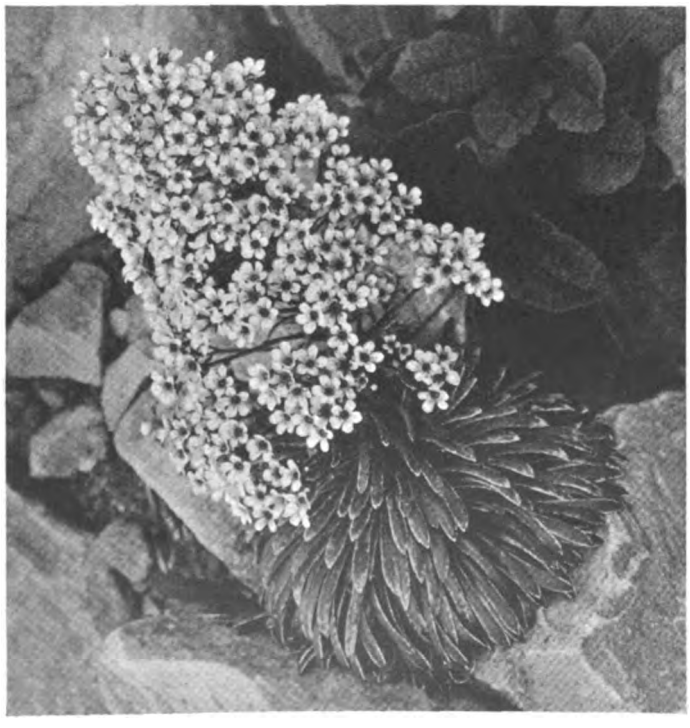
THOUGH the roots of twitch and bindweed may defy all efforts at extraction, twisting and twining to an unbelievable length beneath the stones you least wish to move, the personal cultivation of a rock garden brings with it a wonderful feeling of creative satisfaction, and memories of long past expeditions to the enchanting mountains of Norway. Switzerland and Austria, each tiny plant seeming to smile at you in recognition of the thought and care bestowed upon it,

The frequent thunderstorms during the recent heat wave have kept the rock garden well moistened, and those alpine gardeners who delayed until the beginning of April to fill in the crevices left bare by the ravages of the wet winter have been well rewarded. Plants such as Soldanella minima or alpina, Androsace carnea and Saxifraga oppositifolia turned out of their pots well rooted, have suffered no check to their growth, and now flourish exceedingly.

The cool northern slopes are clothed with the green carpet of Arenaria balearica, with its myriads of tiny white flowers on slender stems not more than 1in. high; while nothing could be of a purer white than the large bell-like flowers of A. montana. All the varieties of low-growing phlox are now at their best, palest pink, lavender, and white, and grow satisfactorily if in an open place where they are not tempted to straggle about for light and air. They seem rather to enjoy being compressed between small rocks or large stones, and grow in more compact, pleasing masses. One of the most beautiful is Phlox nivalis, but this will have suffered in most gardens from the damp mild winter, so that cuttings should be taken whenever possible, as it does not seed freely.

The mossy saxifrages are past their best, but where they are not dried and over-heated they remain a glory even into June. Perhaps the best is S. muscoides, and its variety atropurpurea. At the present time they press closely against their surrounding stones, throwing up innumerable short stems with little pink blossoms, very neat and easily grown. When the flowers die off, the plants do not straggle about and become untidy as do most "mossies," but the closely packed foliage turns at the approach of autumn to a pleasing crimson and sober green.

The same pleasure may be obtained from the foliage of S. Rhei, and its variety Guildford Seedling, no less than from their flowers, both of which keep their colour better when not in full sun. S. Wallacei, on the other hand, cannot boast of this neatness of growth, but repays any trouble a gardener may take in rearing new plants. It grows rapidly and is apt to become ragged, dying off in the centre; but plants of not more than two or three years' growth are now of great beauty in the rock garden, transforming their corners into sheets of dazzling white with really large well opened flowers.



SAXIFRAGA LONGIFOLIA, FROM THE PYRENEES, THE FINEST OF THE ENCRUSTED SAXIFRAGES.

DURING THIS MONTH THE SUN ROSES, OR HELIANTHEMUMS, ARE AMONG THE MOST BEAUTIFUL PLANTS IN THE ROCK GARDEN.

Of more interest, undoubtedly, are the encrusted saxifrages, so called from the fact that the pores on the leaves are encrusted by the chalk, taken in through the roots, crystallising and blocking the opening, thus preventing excessive evaporation during hot sunny weather, as the plants live on dry stony heights.

The best of all these is Saxifraga longifolia from the Pyrenees, which grows well when planted in a tight crevice with plenty of limestone chips and mortar rubble in the loam, and with a deep root run. It never sends out offshoots, but grows readily from seed planted either in autumn or spring, and will not flower during its first twelve months. When

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the plant is mature, however, and the long, whitish green outer leaves are spread out like a star, it will throw up from its closely packed centre a pyramid of blossom, a hundred or more pure white flowers, borne on a stem from 1ft. to 1½ft. high, most beautiful and uncommon in form. The seeds should be collected daily, as those from the lower flowers ripen first and fall before the higher seed vessels have matured.

SS. lingulata, crustata and Aizoon are all valuable and of great beauty at the end of May and in June. Though they are of looser growth, and the flower heads shorter and less densely packed with flowers, they creep round the stones in a most dainty way when well established. Some brought back from the Riffel Alp in 1908 are now quite naturalised. They have seeded about in the chinks of rock, and everywhere have spread into masses of silver or grey-blue stars, the smaller nestling among the more mature, which throw up spikes of white flowers of a loose but graceful growth, the stems of S. lingulata being of an attractive reddish colour from about 10ins. to 1ft. high.

SAXIFRAGA WALLACEI IN SHEETS OF DAZZLING WHITE ALONG WITH ANEMONE BALDENSIS.

S. rotundifolia is another rockfoil which has spread and increased since it was brought back in 1908 from the Riffel Alp. Planted in the cool damp corners of the rock garden it throws up innumerable pink-spotted small flowers, as in the sub-alpine woodlands. There are some tiny varieties growing after the manner of the robust London Pride, each small tuft giving off a head of pale pink, fragile flowers; these easily increase and fill steep crevices.

All the varieties of sempervivum, too, are now at their best, from S. Tectorum, the common houseleek, native in the great mountain ranges of Europe, to the cobweb S. arachnoideum, that attractive plant that looks as though it employed a troop of spiders to bind together its fleshy, succulent leaves in a meshwork of fine white threads. Apparently this is a provision of nature to hold the leaves more erect, and so to ensure that the sunlight should fall obliquely on the upturned surfaces; thus, excessive evaporation is checked when the plants live in arid rocky heights. Just as the encrustation of the silver saxifrages becomes less when moisture is plentiful, so the cobwebbing of S. arachnoideum diminishes if it grows in a cooler, damper situation. This species, like S. montanum, has picturesque rose-coloured flowers, while those of Wulfeni and Gaudini are yellow. They make a beautiful decoration in shallow pans of grit, chips and sandy loam, but if grown in the rock garden their methods of finding fresh ground over the bare face of small rocks, when their own niche has become overcrowded, is of great interest. So long as there is room surrounding the original rosette, the runners sent out produce a fresh rosette and root immediately around the parent; but later, when the dense mass of rosettes can no longer expand for lack of root room, the runners grow longer and longer till they reach a fresh crevice over the rock face; thus a well naturalised colony appears to be handing its children across the face of the precipice, with human care for the preservation of its offspring.

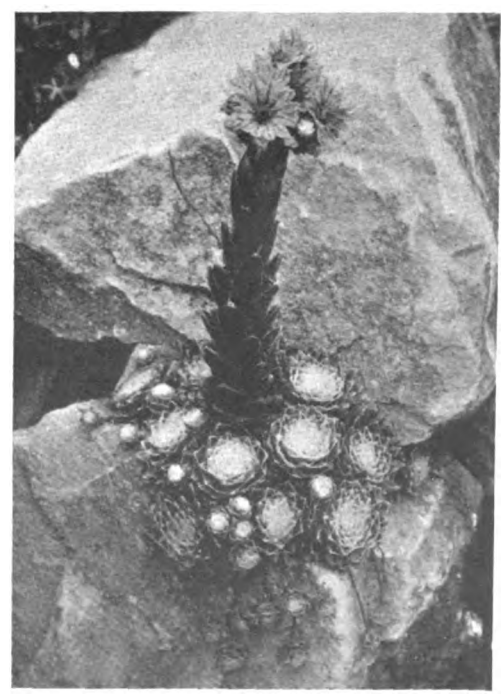
Many of the silenes, helianthemums, daphnes, androsaces, and geums are now in full flower; and our native beauty of the limestone rocks of Scotland, Dryas octopetala, must not be forgotten. Then the Gentians, acaulis and verna, together with the vivid blue of Lithospermum prostratum, make a remarkable blaze of colour if they have condescended to thrive. Deep moisture, perfect drainage, exposure to sun and air, protection from devastating winds, deep loam with sand grit and leaf-mould, a good top-dressing when the flowers are over—and in the case of the gentians cut from their stock, all these are demanded—and such attentions are, as a rule, repaid by a glory of surpassing loveliness.

Lightness and variety are produced by allowing the white Anemone alpina to seed itself where it will in the rock garden, and if A. baldensis and A. narcissiflora can be persuaded to do the same, the result is as perfect as can be obtained. It is of enormous advantage to back the rock garden with a few tall plants, such as aquilegias, iris, white foxgloves, yuccas, Martagon and St. Bruno's lilies, with the alluring spikes of the various species of eremurus. These thrive and readily increase where they are happy, and give distinction and pleasure by their 10ft. spikes of pink buds, opening from below into fascinating, long-anthered, pale pink flowers, each petal centred by a deep ridge of darker pink, and each characteristically pressed backwards as if to show its full glory.

Thus, by a judicious selection of plants, the rock garden can be made a perfect joy in June and July.

CHRISTINA MARSH.

THE COMMON HOUSELEEK, SEMPERVIVUM TECTORUM.



SEMPERVIVUM ARACHNOIDEUM WITH ITS CHARACTERISTIC WHITE COBWEB.

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THE ROBERTSONIAN SAXIFRAGES

BY DR. R. LLOYD PRAEGER.

THE well known London Pride group of saxifrages consists of just three species, all common in cultivation—the kidney-leaved saxifrage (S. Geum), the London Pride (S. umbrosa), and S. cuneifolia, which has not a recognised English name. Haworth (1812) placed them in a separate genus, which he called Robertsonia; Tausch (1823) named them hydatica, and Don (1822), gymnopera; but all subsequent botanists follow Linnæus (1737), in including them in the great genus saxifraga. All three are confined to central or western Europe, where they have very distinct ranges, S. cuneifolia being abundant in the Alps and surrounding regions and extending to the Pyrenees, while S. umbrosa and S. Geum are confined to the Pyrenean region and Ireland. As regards the last two species, much confusion has long existed, in two respects. Firstly, as to their distribution; both easily run wild, and having been for a long time in cultivation throughout the greater part of Europe, they have often been recorded as native, where they are only naturalised. I suspect that all the records from central Europe—Germany, Switzerland, Austria—belong to this category (though Austrian botanists consider S. umbrosa native in ravines near Ternberg); certainly the records from England, Scotland and northern Ireland are inadmissible. Secondly, all three species are variable, and, moreover, S. umbrosa and S. Geum hybridise freely where they grow together. Quite a number of these varieties or hybrids have, at different times, been described as species—for instance, SS. dentata, crenata, modesta, hirsuta, Donii, sphæroidea, polita, elegans, gracilis, serrata, serratifolia, spathularis. There are, in addition, a number of garden varietal names, mostly of little value, many of which will be found mentioned in Farrer's "English Rock Garden."

Since two of the species occupy regions remote from most European botanists, it is not a matter of surprise that the majority of the botanical books make rather a hash of this difficult group; but one might have hoped that in the great monograph on Saxifraga, by Engler and Irmscher, published in the Pflanzenreich series in 1919, we should have had all this confusion swept away, and a clear account given of the species and their complicated offspring. That is, however, still a desideratum. The authors named divide S. Geum into two subspecies, eleven varieties, and five forms, and S. umbrosa into three varieties and four forms; plants known only in gardens being included. But a large number of these variants are, without question, hybrids, and others are not more distinct—sometimes less so—than other varieties, both wild and cultivated, which are not mentioned—for instance, the dainty primuloides form of S. umbrosa, the loveliest of all the London Prides. If one goes, say, to County Kerry, where umbrosa and Geum grow abundantly, one receives an education in this group that is most enlightening. I have had no opportunity of studying the plants in the Pyrenees, where, likewise, they consort, though I have seen a good many Pyrenean specimens. There is little doubt that one's experiences there would be similar. I shall endeavour to unravel the London Pride tangle, with the assistance of the Irish evidence. It should be mentioned that in this group floral characters are of little service for diagnosis; the leaves are the important feature. In S. umbrosa the flowering stem is stouter, taller, and redder than in S. Geum, and the inflorescence and flowers larger; and the same thing applies to S. Geum, as compared with S. cuneifolia; but these and other floral characters are chiefly relative, and we have to turn to the leaves for the more important distinguishing characteristics.

First of all we have typical S. Geum, a slender plant of shady places, ranging in south-west Ireland from sea level to 3,000ft. The leaf blade is approximately circular in outline, heart-shaped at the base, hairy on both sides; the leaf margin is crenate (*i.e.*, the teeth are rounded), the leaf stalk is several times longer than the blade, slender, almost round in section, very hairy (Fig. 1, A). This is the typical Pyrenean and Irish form, and it is common in gardens. It is S. Geum sub-species eugeum var. Lapeyrousii of Engler and Irmscher's monograph. All the departures from this type tend towards umbrosa, and most, if not all, of them are hybrids. In spite of the many described "varieties," I believe that S. Geum (though classed as a "typus polymorphus" by Engler and Irmscher), is much less variable as a species than S. umbrosa. The only variations of any consequence that I have seen, which may not be due to umbrosa blood, have reference to size (there are some very strong forms in gardens), toothing (broadly crenate to crenate-serrate), and colour (dark green to yellowish on face, green to crimson on back).

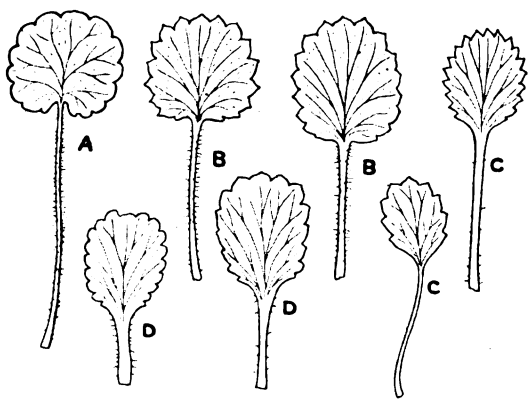

FIG. 1.
Half natural size.

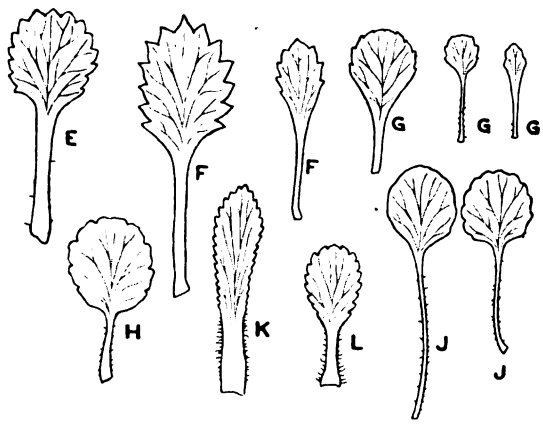

FIG. 2.
Half natural size.

In the first departures from type Geum towards umbrosa, represented by S. dentata of Haworth and S. Geum var. argute-serrata of Engler and Irmscher, the cordate leaf base goes, the leaf edges meeting the stalk at about a right angle, and the teeth tend to become sharp (Fig. 1, B, B). Following on these, we get a long series of forms which have been grouped under S. hirsuta of Linnæus, and which are responsible for many of the specific and varietal names which cumber the group. All are intermediate between Geum and umbrosa, but the mixture of characters varies greatly in regard to shape of leaf and of teeth, hairiness, and so on. That these are hybrids is evident from even a cursory study of the plants on their native ground, and has been proved by the experiments of Professor H. H. Dixon, as described in R. W. Scully's "Flora of County Kerry" (1916). Professor Dixon produced a full series of them synthetically by crossing the two species. One can see the same thing occurring in nature at places like Connor Hill Pass in Kerry, where the two species and all kinds of intermediates grow together on rocks by the roadside. A couple of these Kerry hybrids are illustrated (Fig. 1, C, C), but a black-and-white sketch cannot show the intermediate character of the colour, texture, etc., of the leaves, which is very striking. It is unfortunate that Professor Dixon's experiments and Dr. Scully's observations, which are so fully set forth in the "Flora of County Kerry," should not have come under the notice of the authors

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of the Pflanzenreich monograph, though published two years before the appearance of the latter.

We now arrive at S. umbrosa, the London Pride, distinguished by its more or less obovate leaf blade (egg-shaped, with the broad end up), without hairs and tapering at the base into a foot stalk, which is stout, flat on face, often hairless and typically no longer than the blade (Fig. 1, D, D). Here an interesting point comes in. As a native, the species is confined (as I take it) to the Peninsula and Ireland, but, unlike S. Geum, the Irish form is not the same as the Pyrenean. In the latter the leaf blade is rather oval, being comparatively broad below, the leaf margin is crenate, or at least not *sharply* serrate, and the foot stalk seldom longer and often shorter than the blade. This Pyrenean plant is the one which Linnæus named umbrosa, so it stands as the type. It is the common form of gardens. The Irish plant, which appears to occur also in Portugal, has leaves narrower below and more wedge-shaped, with sharp teeth, and a stalk mostly longer than the blade (Fig. 2, F). It is the S. serratifolia of Mackay, S. serrata of Sternberg, and should be known as S. umbrosa var. serratifolia. It is widely spread along the south and west of Ireland, from sea level to the tops of the mountains, and has recently been found at 2,000ft. in Wicklow. Specially sharp-toothed forms of it are often seen in gardens, under a variety of names.

Most of the variants of pure umbrosa are developments in the direction of and beyond serratifolia, and away from S. Geum—the leaves more sharply toothed, the blade smaller or narrower or more wedge-shaped. I illustrate (Fig. 2, F, F) a couple of plants collected in Ireland to exemplify the range of variation.

Regarding the third species of the group, the well known S. cuneifolia, little need be said. Although the plant varies much in size, the leaf blade from almost circular to narrowly wedged-shaped in different forms (Fig. 2, G, G, G), and its margin from smooth to toothed, the plant is easily known by its small size, dark green colour, absence of hairs, and slender flower stems, only half the height of those of the other species. A hybrid with umbrosa is reported from Berlin, and I illustrate (Fig. 2, H) what seems to be the same thing from my own garden. Other garden forms are much larger than the type, with a very round leaf blade and very long leaf stalk (Fig. 2, J, J). I am inclined to suspect that there is some Geum blood in these; they are not referred to in the alpine and Pyrenean floras, which is suspicious, and the size and shape of the leaves are suggestive of Geum.

Finally, a number of hybrids are known between members of the Robertsonia group and other saxifrages. These include ? crustata × cuneifolia (pseudo-Forsteri Sündermann), Aizoon × cuneifolia (Zimmeteri Kerner), Cotyledon × cuneifolia (Jäggiana Brügger), Taygetea × cuneifolia (tazetta hort.), Aizoon × Geum sub-species hirsuta (Andrewsii Harvey = Guthrieana hort., and Wildeana Kunze), Geum × rotundifolia (hybrida Vill.). Of these the best known is Andrewsii (Fig. 2, K), a delightful plant, erroneously stated to have been found in Ireland. I follow Engler and Irmscher in setting this down as identical with Guthrieana, but as I recollect the latter in British gardens (I have not access to it at present), it is different, though evidently of allied parentage. The reference of Andrewsii to Aizoon × hirsuta (taken also from Engler and Irmscher) would make it a three-parent hybrid—Aizoon × umbrosa × Geum. It would seem more probable that it is Aizoon × umbrosa. There is another hybrid of this group which I had from Glasnevin, with a much broader leaf blade and more distinct foot stalk (Fig. 2, L). I do not know that it has a name. Like Andrewsii, it has the little marginal white, cartilaginous covering to the teeth which characterise the section Euaizoonia, to which S. Aizoon and its allies belong.

For garden purposes we may sum up the whole of this complicated group as follows:

1.—S. GEUM.—With round, hairy, long-stalked leaves, heart-shaped at the base and crenate on the margins. Leaf-stalk round and slender.

2.—S. UMBROSA TYPE.—The common garden London Pride, with oval or obovate, smooth, short-stalked leaves, wedge-shaped at the base, and crenate or crenate-serrate on the margins. Leaf stalk broad, flat on face.

3.—S. UMBROSA VAR. SERRATIFOLIA.—Differing from the last in its more sharply-toothed, more wedge-shaped leaves, with longer stalks.

4.—A crowd of hybrid forms, intermediate between No. 1 on the one hand and Nos. 2 and 3 on the other, many of them handsome plants but hardly worthy of names, as all intermediates exist.

5.—A few distinct varieties of umbrosa which deserve a place in the garden, like var. primuloides hort., and var. crenata hort. The former should be in every rock garden. There are also variegated sports for those who care for such things—one silver and pink, another with gold blotches, both inclined to revert to type.

6.—S. CUNEIFOLIA.—Small, dainty, dark green, without hairs; a pleasing rock plant in its various forms.

7.—Hybrids between the Robertsonia species and species of saxifrage of other sections; of these S. Andrewsii is the most important for garden purposes.

The readiness with which the species of the Robertsonia group, and S. umbrosa in particular, accommodate themselves to all kinds of garden conditions, has put them among the most widely grown of all rock plants, but has, at the same time, tended to blind us to their beauty. The London Pride is one of the handsomest of all saxifrages, both in leaf and flower, and if only it were rare or "miffy," with what pride would we point to a well grown plant in the rock garden!

I have to thank Miss Eileen Barnes for the figures. While they illustrate excellently the critical leaf characters, according to which diagnosis must be made, it would need a drawing of the whole rosette to give an adequate idea of the appearance of each form; and even then we should lack the details of colour and texture, which are often very characteristic.

GARDENS OF HEALING.—IV

HEALTH gardens can be of two kinds, those of the amateur who grows the beneficent plants for simple family medicines and for the interest and knowledge which their cultivation gives—and those of the professional, who cultivates them to dry and sell. The latter should reserve as large a piece of ground as possible for the poisonous plants, which are in great demand. These are easy of culture and include Belladonna Atropa, Datura Stramonium, Aconitum Napellus, Colchicum autumnale, Chelidonium majus, Digitalis purpurea, Solanum Dulcamara, Helleborus niger, Solanum nigrum, Scilla maritima and Ruta graveolens.

A large *red* label should mark the poison section of the health garden and every separate plot should have a smaller, but conspicuous red label bearing the word "Poison" as well as the name of the plant.

For the amateur's garden of healing it is as well to dispense with the poisonous plants, whose properties can, of course, only be made available by acredited professional people. The following well known herbs have healing, nourishing and tonic properties: colza, chervil, caraway, coriander, tarragon, fennel, rosemary and marjoram.

Flax (linum), the healing properties of whose seeds are so well known on account of the soothing oil which they contain; mustard (Sinapis nigra), constantly used in poultices for chest complaints and chills and also as an anti-poison; and saffron crocus, whose stigmas are so stimulating and nourishing, are three useful plants for the health garden. From the last named plant an infusion is made, either with a handful of stigmas or a tablespoonful of the crushed corms, which is an excellent tonic in cases of debility and loss of appetite, or for the depression which so often follows influenza.

Herb Robert and millet are two other interesting plants which are of service to mankind. The former is astringent and an infusion of the whole plant is an excellent gargle for ulcerated and inflamed throats and also as a lotion for healing sores and wounds. Bread made from millet flour is delicious as well as exceedingly nutritious and is used in cases of dysentery. An infusion of millet seed is an excellent drink for inducing eruption of the rash in cases of measles and scarlet fever. For deafness and to cure buzzings in the head, a simple cure is to fill little bags with equal parts of crushed millet seeds and common salt and to place them on the ears. The same relieves heavy and aching heads.

VICTORIA SLADE.

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RHODODENDRONS IN NORTHUMBRIA

THE dwarf rhododendrons on the rockery here have mostly done well this spring. Some of the little ones of the R. fastigiatum group have been wonderful masses of colour, but all too fleeting owing to the hot weather, though at any time the flowers of these are only short lived. Larger growers, like R. ciliatum, having escaped all damage by frost, except for a few buds which were of no account, have made a fine display.

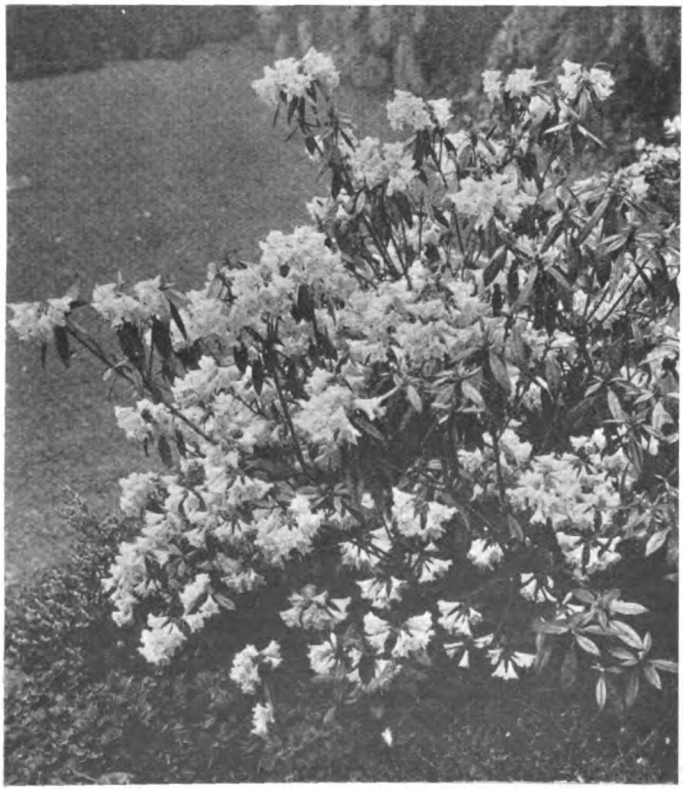
Most of the dwarf rhododendrons are planted in an open situation in soil largely composed of leaf-mould, with a small admixture of heavy loam. Probably such a soil is better than pure peat, and the small quantity of clay is good as a moisture holder. Taking the more interesting species in alphabetical order

R. CALOSTROTUM continues to do very well, and though not flowering so freely this spring as last, is growing vigorously. It shows a tendency to increase more in width than height. At all times it is a neat, low-growing little bush, but when in bloom it is a great beauty, with its large, bright pink flowers held well above the blue grey foliage.

R. CHAMÆCISTUS, correctly RHODOTHAMNUS CHAMÆCISTUS.—Although this species has the reputation of being rather fickle, a plant put in about two years ago is doing very well. As this species is found in the Eastern Alps on a limestone formation, at the time of planting an old bone was inserted in the hole, and, whether thanks to the old bone or not, it is flowering with great freedom this spring. The flowers are flesh pink with darker markings towards the centre and they are very lovely.

R. CHRYSEUM looks healthy, and though its pale yellow flowers have not yet been produced as freely as in the case of primulinum, it promises in time to make an attractive little bush.

R. CILIATUM cannot always be called a dwarf rhododendron, but if grown in an open situation after reaching about one foot in height, it will spread out into a flat-topped bush, and increase in height very slowly. Unfortunately, its flowers and buds are easily damaged by frost, and as it is an April bloomer, it is almost useless where spring frosts are prevalent.



WITH CAREFUL ATTENTION R. RUBIGINOSUM FORMS A HANDSOME AND SHAPELY BUSH.

RHODODENDRON IMPEDITUM WHEN GROWN AS A BUSH REACHES A FAIR HEIGHT.

Here it gets caught about every other year. When it does escape all damage its large white, pink-flushed flowers, as fine as any greenhouse azalea, make ample compensation for previous disappointments.

R. DICHROANTHUM.—A plant put in last autumn is growing satisfactorily. It may eventually be too big for a small rockery, but could not be left out.

R. FASTIGIATUM is one of the best of the low-growing kinds, and forms a wide mat of silvery blue-green foliage, which is attractive all the year round, and in April-May is covered with a profusion of lilac or lavender-blue flowers. It is very accommodating and easy to please, and small rooted cuttings quickly form nice little bushes.

R. HIPPOPHÆOIDES is another good purplish-blue of an erect habit of growth. It has an advantage over fastigiatum in that its flowers last fresh for a longer time.

R. IMPEDITUM forms a neat, compact little bush, with glossy dark green leaves and lavender or purple flowers with conspicuous stamens like fastigiatum and scintillans. It seems to be quite easy to grow.

R. INTRICATUM is also a good mauve or lilac sort that is especially valuable on account of its blooming after most of the others are over.

R. LEDOIDES might be called the daphne-flowered rhododendron. Its pink flowers at their best are very beautiful and last well, but it is not so easy to grow as most of the others. Here, its chief requirements seem to be at least half shade and a moist, but well drained mixture of leaf-mould or loam.

R. MOUPINENSE has grown quite well, but has not yet succeeded in producing its February flowers. Perhaps it will be able to do so some year if we get a sufficiently long spell of mild weather, or a winter hard enough to keep it back till spring.

R. MYRTILLOIDES is too young yet for one to say more than that its small glossy dark green leaves, white underneath, look attractive, and that it is growing well.

R. PRIMULINUM is one of the indispensables in any collection, however small. It is a pity its pale yellow flowers are individually so short lived, but they are produced in such quantities that a bush in full bloom is a fine sight.

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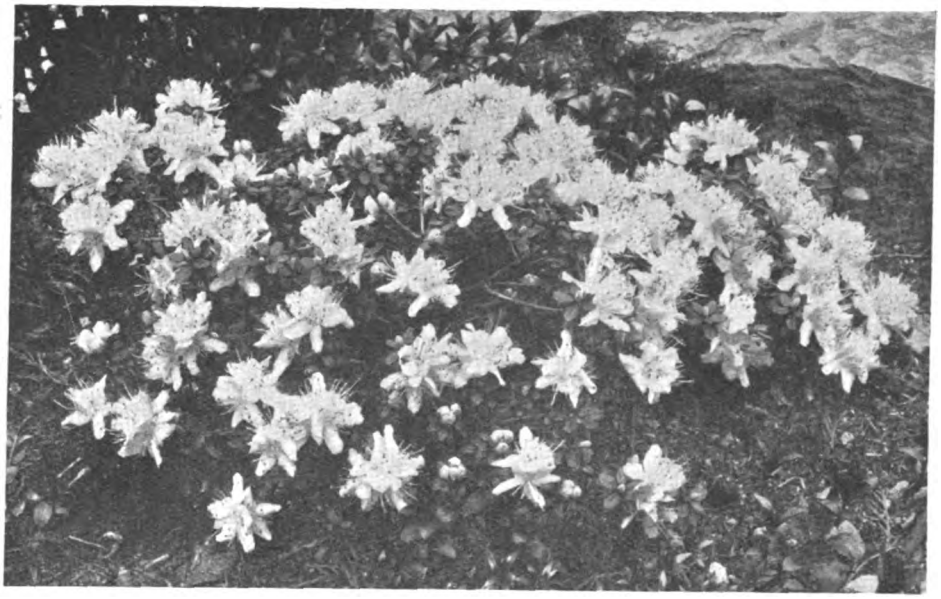
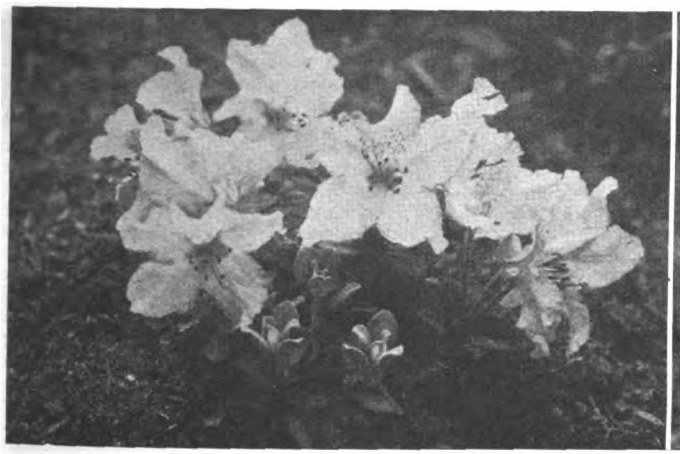
R. RACEMOSUM is very accommodating, and is rightly now a favourite. As it flowers all up the previous year's shoots it looks better as a vigorous young plant making long annual growths than after it gets older.

R. RUBIGINOSUM if left alone may eventually get far too big for almost any rockery, but it flowers so freely in a young state, and springs so readily from the base if cut back, that it may with advantage be included. Although the individual flowers are not large, they are of a bright and attractive pink, and produced in clusters containing as many as twenty-five single flowers at the ends of the strong shoots. As its bark seems liable to split near the ground in very severe winters, perhaps it will never become very large, unless in the west or near the sea.

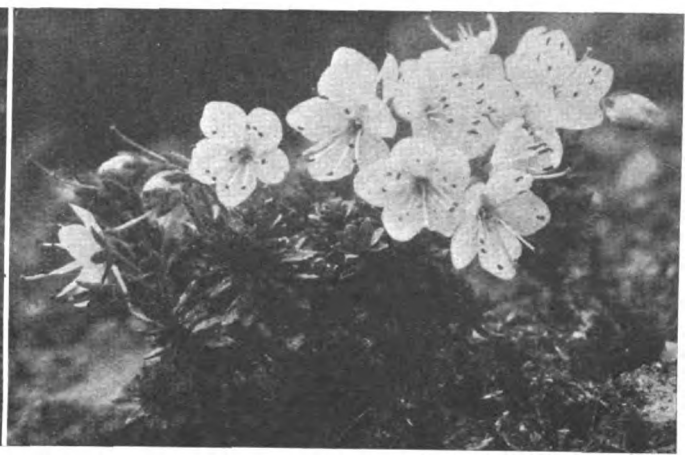
R. SCINTILLANS has given no trouble here. It has a loose habit of growth, and its lavender blue flowers are freely borne and last well.



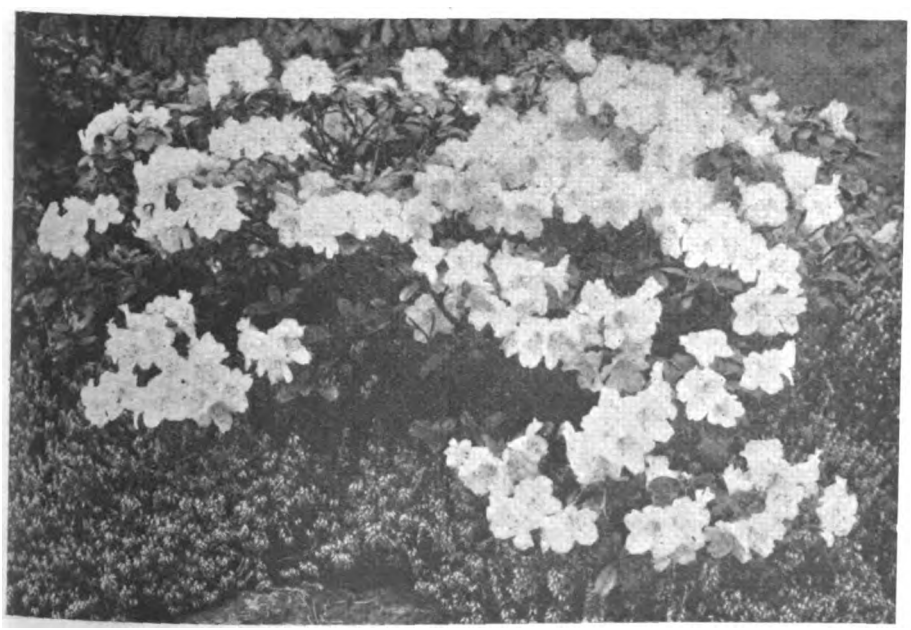
RHODODENDRON FASTIGIATUM, ONE OF THE MOST ATTRACTIVE OF THE DWARF SPECIES WITH ITS SILVERY GREEN FOLIAGE AND LILAC BLOSSOMS.



RHODODENDRON CALOSTROTUM, OF NEAT AND COMPACT HABIT AND CARRYING LARGE BRIGHT PINK FLOWERS.



ONE OF THE LIME LOVING SPECIES, RHODODENDRON OR RHODOTHAMNUS CHAMÆCISTUS.



RHODODENDRON CILIATUM IN COMPANY WITH ERICA CARNEA WHICH ACTS AS A MEASURE OF PROTECTION AGAINST SPRING FROSTS.

R. WILLIAMSIANUM demands shade and moisture, and a well drained soil largely composed of leaf-mould. Here it has not yet flowered. If it gets too much sun, or the soil is badly drained, it seems liable to die off suddenly, but its leaves are so distinct and its flowers so fine, that it is well worth a little extra trouble.

Anyone living in a limestone district who would like to try these dwarf rhododendrons, would find a foot of lime-free soil laid down on top of their limy soil to be ample, and provided there was no higher limy soil in the near vicinity, the new soil should keep quite sufficiently lime-free to give just as good results as can be got anywhere. Of course, limestone stones would have to be avoided for such a bed, and a guard kept against using very hard water for watering in dry weather.

In conclusion, I would recommend all rhododendron lovers to read "Rhododendrons for Amateurs." This book contains much useful information regarding the culture of the species I have mentioned.

R. B. COOKE.

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DELPHINIUMS AT VINCENT SQUARE

QUITE a feast of colour met the eye on entering the Royal Horticultural Society's Hall on the occasion of the ordinary fortnightly show on June 23rd and 24th. The delphiniums were undoubtedly the principal feature of the show and provided a splash of colour that is all too rarely seen at the Hall. Blue and shades of blue to be truly appreciated require the sun's rays to supply a warm tone to the colourings and, naturally, are seen to best advantage in the garden itself. But, nevertheless, the effects *en masse* was magnificent, and if one's glance took in the brighter tints of the sweet peas and the roses, then the picture was both complete and wonderful.

Both Messrs. Blackmore and Langdon and Mr. T. Bones had outstanding exhibits. In each case the size and form of the flowers and general arrangement on the spike were perfect. The flowers were evenly placed—not in the least overcrowded nor yet thin—and the spikes beautifully tapering. The Shah was a variety of unique colouring and great height. The semi-double flowers are deep rosy-lavender. Mrs. Townley Parker was also noticeable. It is one of the best pure blue singles. The huge spikes of Mrs. A. J. Watson (deep mauve), and Robert Cox (rich blue and rosy-lilac), towered above the rest. Edward Bromet, a variety of purplish blue with a white eye; Millicent Blackmore, with blue and mauve flowers symmetrically placed on long tapering spikes; and Marjorie Ferguson, a beautiful sky-blue and mauve, were all much admired. Walter T. Ware, Purple King, Mrs. Shirley, Mrs. Christie Miller, Sir Douglas Haig and Pannonia were also seen on the stand of Messrs. Blackmore and Langdon.

Mr. T. Bone is to be congratulated on the excellence of his delphiniums. Luxor was the most striking variety. The tall and stately spikes with their semi-double flowers of rich blue and purple stood out from among the rest. A variety of great strength and vigour was The Rev. Charles Storr. It has large semi-double flowers of bright blue suffused with rosy-mauve. Miss Winifred B. Mackintosh was a delightful colour, being soft blue suffused with mauve and having a conspicuous white eye. Other good varieties were Mrs. H. Kaye, Dusky Monarch, Rev. E. Lascelles, The Alake, Elsa and Mrs. T. G. Baker.

Some fine delphiniums were staged by Messrs. Waterers and Mr. T. Carlile. Among Messrs. Waterers' exhibit were the varieties Blue Bird, Daphne, Harry Smetham, Walter T. Ware, Elsa, Mrs. Creighton, Mde. Violet Geslin and King of Delphiniums. Blue Bird is an intense blue, and about the nearest to a true blue self. It is one of the earliest to bloom and has graceful, tapering spikes.

Among the delphiniums exhibited by Mr. T. Carlile were Norah Ferguson, Blue Lagoon, Mrs. A. C. Kendrick and Mrs. Victor Hewlett. Barbara, Phyllis Charrington, Lovely, Barbara Thomas and Pannonia were also seen. Norah Ferguson, a delphinium which has received much attention, is semi-double, with flowers of a beautiful shade of pale blue blended with soft pink.

Messrs. Bunyard had a large ground exhibit of delphiniums. Such varieties as Medea, Empress Queen, Guardsman, Walter T. Ware, The Alake, Lavender, Mrs. Creighton, Robert Cox, Lizzie Van Veen and Minerva had been selected to fill the large oval bed. The group was most effective. Messrs. R. H. Bath were exhibiting peonies and delphiniums. The latter formed a pleasing contrast with the pinks and reds of the peonies. Perfection, a tall light blue variety; Dusky Monarch, a light purple with a striking black centre; Splendour, a pale sky blue and mauve; James Kelway, Ladye Faire and Ida R. Elliott were shown by this firm.

Messrs. Kelway and Son also exhibited delphiniums, together with their famous peonies. The branching habit of the varieties shown by them was particularly noticeable. Jewel of the West, Thunder Cloud, Lloyd George, Smoke of War, Bluebeard and Sir Alfred Keogh, were a few of the best. Lloyd George is a bright blue and violet delphinium with a white eye and large flowers.

A small but striking exhibit, staged by Mr. J. Burrell, was formed of one variety of delphinium alone. It is known as Mrs. W. J. Sanderson and is of a brilliant blue, with a conspicuous white eye. The spikes are of medium size and the flowers evenly placed thereon. For the herbaceous border this will be a most useful and effective variety.

Messrs. Lowe and Gibson had some exceedingly beautiful delphiniums. These, all raised from seed, were exhibited to show what good flowers in a great variety of colours can be obtained by such a method of propagation.

Several firms staged very good exhibits of roses. Some of the specimens shown by Messrs. Alex. Dickson and Sons were perfect and very fragrant and the whole exhibit was well arranged. A truly wonderful colour is Scarlet Glory, a vermilion scarlet hybrid tea, with flowers of good form and abundant dark green foliage. Fred. J. Harrison was another beautiful rose with cardinal red petals shaded blackish crimson towards the outer edge. Saltaire, Sunstar and Ethel Somerset were very effective. Some good varieties could be seen on the stand of Messrs. Benjamin R. Cant and Sons, and among them Lady Roundway, a deep coppery chrome; C. V. Haworth and Sovereign, with its deep golden yellow flowers and well shaped buds, were noticed.

Several new hybrid tea roses were shown by Messrs. Chaplin Bros., one, Mrs. Herbert Nash, received an award of merit. Two others were Lady Sydney Eardley Wilmot, a coppery salmon novelty, and Eric Holroyd, a brilliant red, shaded gold at the base. Messrs. Samuel McGredy and Son had chosen among many others, Diadem, Lord Charlemont, Vesuvius and Mrs. Henry Morse for their exhibit. Mr. George Lilley had two good hybrid teas, one being Marcia Stanhope, a sweetly scented white rose, and the other Lady Constable, a bright salmon pink. Mr. J. H. Pemberton staged many varieties of roses, some of them of his own raising. Anne, I. Zingari, The Adjutant and Aurora were a few of those introduced by this specialist.

There are few garden lovers who can fail to appreciate the genus campanula in all its many forms and varieties and which lends itself to such an infinite variety of situations in the garden. The so-called Canterbury Bells rank among the finest of our herbaceous flowers, and it is only on an occasion such as this, when Messrs. Ladhams of The Shirley Nurseries, staged a number of fine varieties, that one has a chance to pay one's respects to the genus. One of the most notable varieties was Everest, carrying large bells of that delicate pale shade of blue always associated with the flower. Another was Faerie Queene, of a still more translucent tone, with wide open bells sitting more squat on the stem. With this variety a fine contrast is obtained between the creamy spreading stigmas and the blue of the corolla. Snowdrift and Snow Queen are both pure white varieties, with well shaped bells, while Queen of June is another of the blue sorts with large, rather spreading flowers, which tend to lose their bell shape. Two semi-double forms of interest were Shirley, with well shaped blue flowers carried on long stems, and The King, of a much deeper shade, almost running to mauve.

One of the finest flowers we have for summer decoration in the garden is undoubtedly the sweet pea, with its wealth of colour and flowering propensities. Both Messrs. Dobbies and Messrs. Sutton's stands were magnificent. On the former such varieties as Powerscourt, Mermaid, Mrs. Tom Jones, which to our minds still remains as the best blue variety we have; Grenadier, with large flowers of a geranium colour; Dobbie's Cream and Magnet, of a delicate cream pink shade were noticed. Messrs. Sutton's staged quite a number of the same varieties, with, in addition, old sorts, such as Majestic Cream, Mammoth and The President Harding. Among the newer kinds, although it seems invidious to single out any we noted Pimpernel, of a vivid scarlet, and Miss California, of a shade of rich salmon cream pink on both stands.

Very few alpines were shown, but F. G. Wood of Ashtead made a decorative exhibit with masses of orange and copper mimulus, grouped at the foot of a Japanese maple and spikes of Primula littoniana, against a dark background of dwarf conifers. The exhibit included Dracocephalum Isabellæ, a recent introduction from western China, Gentiana decumbens alba and Œnothera mexicana, with almost stemless flowers of vivid pink.

Messrs. Waterer showed Codonopsis ovata, pale blue bells decorated within by geometric designs in orange, purple and black; Gentiana macrophylla, a dull, cluster-head gentian; the strange and brilliant Sedum sempervivum, looking at present like a pile of terra cotta tiles, but surmounted by a fat bud that will presently break into a spray of blood-red flowers; Convolvulus Cneorum and Campanula turbinata pallida, with its relatively enormous flowers of greyish blue.

Among other exhibits were the following:

Alpines.—Messrs. Bakers, Ernest Dixon, R. Tucker.

Carnations.—Messrs. Allwood Brothers, C. Engelmann, Lowe and Gibson and Stuart Low and Co.

Greenhouse Plants.—Messrs. L. R. Russell and Co., and Stuart Low and Co.

Hardy Plants.—Messrs. J. C. Allgrove, Barrs, T. Carlile, Chalk Hill Nurseries, Godfrey and Son, K. and E. Hopkins, Harkness and Sons, M. Prichard and F. G. Wood.

Irises.—Messrs. Barrs and M. Prichard.

Orchids.—Messrs. Sanders and Stuart Low and Co.

Strawberries.—Messrs. Laxton Bros., and J. A. Mix.

Shrubs.—Mr. Charles Turner.

St. Brigid Anemones.—Messrs. Reamsbottom and Co.

NEW AND RARE PLANTS.

AWARDS OF MERIT.

PHLOMIS FRUTICOSA.—This interesting shrubby member of the Labiatæ has long been cultivated in this country, and it is passing strange that it has not obtained an award previously. It is an interesting evergreen shrub, bearing dull green wrinkled leaves like the common sage, with, in addition, numerous stalkless, bright yellow flowers, characteristic of the family. Shown by the Director of the Botanic Gardens, Cambridge.

OZOTHAMNUS ROSMARINIFOLIUS.—This well known shrub, popularly called "Snow in Summer," was represented by a well grown pot plant and long flowering sprays. It is a characteristic dark evergreen shrub with small smooth leaves closely arranged on the branches and clusters of quite small, pure white flower heads. It thrives excellently under the protection of a wall. Shown by

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Sir William Lawrence, Dorking, and Mr. Allgrove, The Nurseries, Slough.

DEUTZIA SCABRA LATIFOLIA. This is a variety of the ordinary type species. It carries rather loose panicles of pure white flowers with rather spreading petals. The leaves are ovate in shape and produce a good contrasting effect with the blossoms. Shown by the Hon. Vicary Gibbs, Aldenham.

ROSE DAME EDITH HELEN.—This was a fine hybrid tea variety bearing large, shapely blooms of a fine shade of pink, carried on stiff wiry stems. The foliage was of good colour and provided an excellent setting for the flowers. Shown by Messrs. Alex. Dickson, Limited. Manchester.

ROSE MARCIA STANHOPE.—Another handsome hybrid tea variety, bearing fine pure white blooms of a rather long, oval shape in the bud. The petals are of good substance, while the foliage is of excellent texture. Shown by Mr. G. Lilley, Slough.

ROSE LADY WORTHINGTON EVANS.—This is one of the finest crimson-red hybrid tea varieties we have seen. The individual flowers are of good shape and form, and the overlapping petals are of good substance, being covered with purplish bloom. The dark green, glossy leaves set the flowers off to advantage. Shown by Messrs. Alex. Dickson.

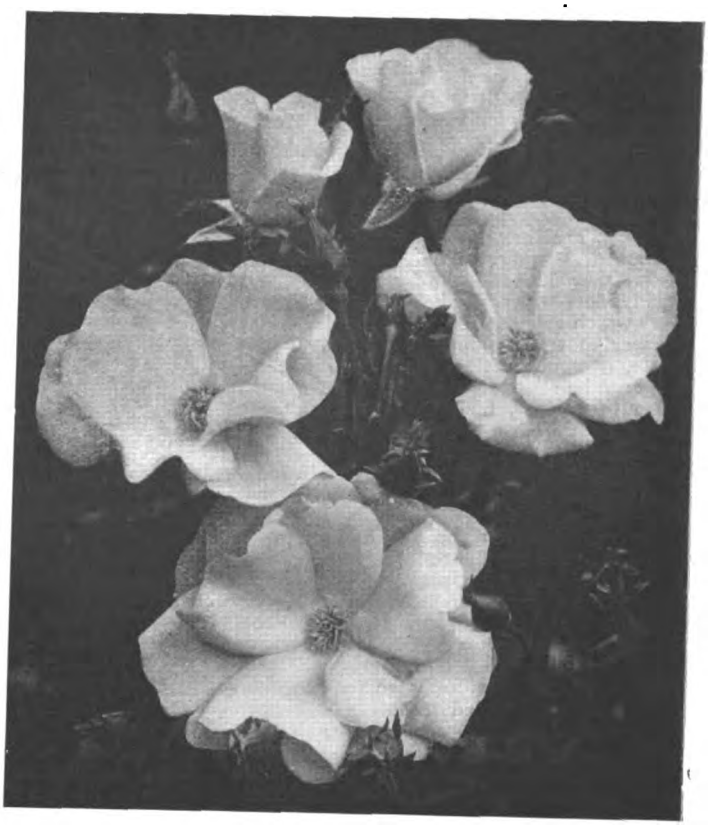
ROSE MRS. HERBERT NASH.—An excellent, sweetly scented hybrid tea variety with large handsome blooms of a deep crimson colour. Shown by Messrs. Chaplin Brothers.

ROSE ELSE POULSEN.—This is a very fine, large, single polyantha variety, with flowers composed of beautifully frilled petals of a delicate salmon pink shade. The foliage was of a hue of glossy green with a tinge of bronze which becomes so pronounced in the autumn. The plant appears to be an excellent doer, judging from the number of buds on the sprays shown. It is certainly a variety which ought to become popular in the future Shown by Messrs. Prior. Colchester.

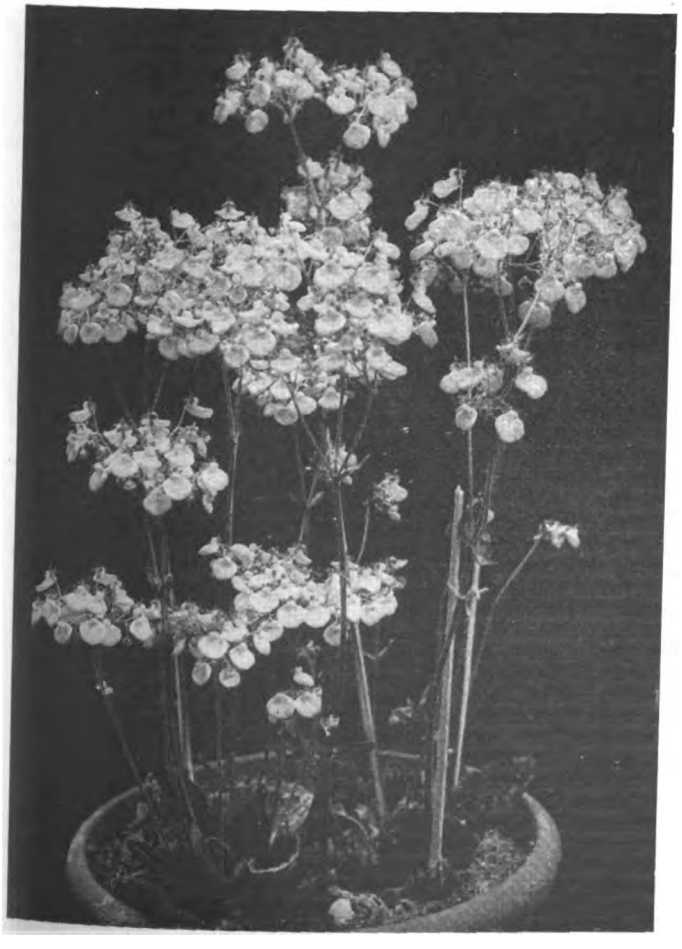
CAMPANULA PERSICIFOLIA GIGANTEA CORONATA SHIRLEY.—A rather fine semi-double form, carrying bells of a shade of delicate porcelain blue. The individual flowers are almost 1½ins. across, and looked well drooping from the tall stems. Shown by Messrs. B. Ladhams, Limited.

CALCEOLARIA PRATENSIS.—This is a small pale yellow flowered form which appears to be admirably suited to pot culture. The flowers are borne gracefully in loose clusters on stems which reach about 1–1½ft. high. The leaves are mostly basal and slightly ovate lanceolate Shown by Sir William Lawrence, Bt., Dorking.

TITHONIA SPECIOSA.—This is a shrubby, half-hardy annual from Mexico, belonging to the composite family. The large, almost orange-scarlet heads are striking and about 3ins. in diameter, with their cushion of yellow stamens in the centre. The leaves are more or less three-lobed and somewhat heart-shaped. Shown by Mr. J. B. Body, Hindhead Court, Hindhead.



THE HANDSOME FRILLED BLOSSOMS OF ROSE ELSE POULSEN.



CALCEOLARIA PRATENSIS OF GRACEFUL HABIT.

ACIDANTHERA CANDIDA.—This is a slender and more or less erect leafy member of the iris family. The pure white flowers are borne on lax spikes and look exceedingly graceful, their appearance being enhanced by the long linear leaves. The flowers are very sweetly scented. Shown by Mr. W. Van de Weyer, Clyffe House, Dorchester.

HEMEROCALLIS WINSOME.—This is a rather dull pale yellow-flowered variety of the day lily. The petals are rather spreading and somewhat reflexed in the open flowers, which are well borne on long scapes. Shown by Mr. G. Yeld, Gerrard's Cross.

DIANTHUS GIANT-FLOWERED FRILLED.—A pot of these frilled varieties of all shades, from white to pink and scarlet, was shown. Some of the flowers were exceedingly graceful and attractive, while with others the colour did not appeal to us. Shown by Messrs. James Carter and Co., Raynes Park.

CLEMATIS QUINQUEFOLIOLATA.—This is a very attractive species from Central China, allied to C. Meyeniana. The leaflets are lanceolate, while numerous white flowers, about ¼in. to ⅜in. across, are borne in clusters or cymes. Shown by Mr. E. M. Preston, The Warren, Hayes, Kent.

ORCHIDS.

LÆLIO-CATTLEYA BEATRICE DE HERRIARD (C. Veiris × L.-C. Ettrick).—A fine addition to the yellow section, the flower shows much of the characters of C. Veiris, a garden-raised hybrid composed of the two species C. bicolor and C. aurea. Award of merit. Shown by Mrs. Beatrice Jervoise, Herriard Park, Basingstoke.

ODONTOGLOSSUM LADY COLMAN (Lambeauianum × "V.C.").—This promising seedling bore a single flower of large size and massive formation, of slight rose tint, the segments heavily blotched with dark crimson, the roundly formed labellum white, with a crimson blotch in the centre, and a bright yellow crest. Preliminary commendation. Shown by Sir Jeremiah Colman, Bt., Gatton Park, Surrey (gardener, Mr. Collier).

ODONTOGLOSSUM LADY HOLMDEN (Lord Pirrie × Amethyst).—This young seedling carried but one flower, having the segments broadly formed and almost covered with dark purplish blotching, the elongated labellum crimson-purple, except for the white apex. Preliminary commendation. Shown by Sir Jeremiah Colman, Bt.

ODONTOGLOSSUM EXIMIUM VAR. GATTON TRIUMPH (crispum solum × ardentissimum var. J. Gurney Fowler).—An interesting result, and the only seedling out of thirty so far flowered in this batch which inherits the peculiar crimson-coloured labellum of crispum solum. There is an occasional circular blotch of crimson on the other segments. Preliminary commendation. Shown by Sir Jeremiah Colman, Bt.

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CORRESPONDENCE

PRIMULA PULVERULENTA BARTLEY STRAIN.

SIR,—Judging by the show reports and the amount of correspondence I have had about these primulas, there seems to be a good deal of misunderstanding about them. I will, therefore, explain what they are. They are *not* hybrids, but pure pulverulenta all through; nor are they the variety Mrs. R. V. Berkeley. This variety—Mrs. Berkeley—was a sterile sport which originated in the Coombe Wood Nursery of the late firm of Veitch. Being sterile, it would not set seed, and therefore could not be raised from seed. As it was such a beautiful plant, I started some years ago to try to obtain a fertile form that would reproduce itself from seed. After several years' work, I got a strain that gave a fairly good percentage of pink forms which has now become a 100 per cent. strain. In this strain there are four or five different pink forms, all good enough to keep, and this year I have about 12,000 plants, out of which I have found only five reverting to the type—*i.e.*, the purplish crimson flower—so that there is now no question about its reproducing pink. As the various forms appeared to be more attractive in a mass mixed together, I have never troubled to isolate and grow each one separately, and as the bumble bees cross the flowers of the various shades, so the seed from any one form will reproduce all or any of the various shades. No doubt by isolation any particular form could be reproduced exactly from seed. The plant is easily grown, and is of very good constitution, and thrives in a cool moist shady place where it does not get waterlogged.

It has been suggested to me by several people that I should use some name by which the strain can be identified. I have, therefore, decided to use the name above, which describes the various shades as a whole.

The following forms have been named: Lady Thursby, A.M., R.H.S., 1924, rose pink, yellow eye; Bartley Blush, blush pink with light eye; Hew. Dalrymple, blush pink with dark eye; and Bartley Pink, pink with light eye.—G. H. DALRYMPLE.

A CLIMBING ROSE.

SIR,—Can any of your readers tell me the name of a free-growing climbing rose, with coppery pink buds which open lighter, but of which the distinguishing feature is the strong perfume of lemon-scented verbena? This rose blooms profusely in May, in the gardens and villas on Lake Como, but I am unable to trace it by this description in any of our rose catalogues, and shall be grateful if anyone can tell me the correct name, and also whether it would be likely to succeed in this neighbourhood.—M. L., *Bournemouth.*

CHARM OF MINIATURE DAFFODILS.

SIR,—I quite agree with Mr. Edward Cahen, in a previous issue of THE GARDEN, on the "Charm of Miniature Daffodils and Narcissi." To my mind there is nothing so pretty in a rock garden, and for edging, than these smaller species, and I have read the article with very great interest indeed.

May I be permitted to correct a little however, his statement regarding Narcissus calathinus: this species (for species it is, and not a form of triandrus) has been known much earlier than Mr. Peter Barr's famous visit to the Glenans. It is very fully described in "Burbidge"; also, it is not at all extinct in the Glenan Islands: it has been collected on two occasions within the last five years for me, and distributed among my friends.

It is to be found at Drenac and St. Nicholas, and my botanical friend has found, on the neighbouring island of Huat, the Mediterranean Ismene, surely a long way from its normal habitat, but which, of course, like calathinus, is accounted for by the very mild climate due to the Gulf Stream.

Incidentally, it was Narcissus triandrus and cyclamineus which launched me out with narcissus-growing over thirty years ago: for it was in the garden of Mr. Brockbank of Didsbury, about 1889, that he showed me, in his alpine house, the first plants of these two species which were then in bloom, and . . . probably from the very bulbs Mr. Peter Barr discovered in Portugal.

I have seen some very fine *hardy* hybrids raised by Mr. C. F. Johnson of Heaton Mersey, the next village, obtained by crossing Narcissus triandrus by Mme. De Graaf.—J. HENRY WATSON.

A SEEDLING BROOM.

SIR,—I am sending you under separate cover a portion of a seedling broom which may be of interest to you. It was picked on the common, about a mile away from any cultivated broom.

You will doubtless remember that Genista Andreanus, the first break in colour from the ordinary scoparius, was found on a common in France, I suppose some thirty years ago, by the late M. André. I have not heard since of any variation being found, except in nurseries and gardens where natural crossing takes place. I expect the origin of this present cross is due to the fact that in an adjoining garden a mile away are now many forms of Andreanus and the bees have carried the pollen. I suppose one may conjecture that in future years it is quite within reason to imagine that the glorious masses of the common yellow broom we see spread over the countryside, will be changed into many seedling coloured forms, such as the one I am sending you, and therefore by man's work some aspects of the countryside will be changed; but, as is frequently open to question, will the result be an improvement or otherwise?—R. W. WALLACE, *Tunbridge Wells.*

PLANT HUNTING.

SIR,—May I thank you and Mr. H. T. Denham, M.A., for kind remarks about my recent articles and say how entirely I agree with the warnings to collectors to respect both the plants and the ground around them, and to remember that they belong to the peoples who show us much hospitality? Mr. Denham's letter is most useful and opportune. I would emphasise the desirability of getting alpine plants and seeds from nurserymen whenever possible. I also think a small rucksack is better than a fishing basket, however well curved to fit the shoulders. Plants would keep fresh longer in the former, and as most collected plants are quite small, the question of rigidity and bruising hardly counts. But a large plant-tin (vasculum) will take an ample supply of alpine plants suitable for the garden. I have found a sponge bag useful for quite small roots when collecting for the herbarium, especially when on climbing expeditions. In the quotation (page 309) from John Ball's warning about frontiers, it should be pointed out that in speaking of the Tenda district, the words "on military matters" were omitted from the sentence "any conversation with natives . . . should be carefully avoided." I want again to recommend the excellent little "Atlas Colorié de la Flora Alpine," by Beauverie and Faucheron, 1906, after Hegi and Dunzinger (Baillière et fils, Paris). The thirty plates with numerous figures are less crude than some in "Hoffman" or Schroeter's "Flore des Alpes," the descriptions equally good and the volume (so little known in England) is no larger or heavier than the former.—H. S. THOMPSON.

ALUM FOR SNAILS AND SLUGS.

SIR,—With reference to my communications on the above subject of January 10th and February 21st, 1925 (Vol. LXXXIX, pages 25 and 107), I may say that since then I have made an experiment in order to determine how strong an alum solution may be made before it will damage plants when they are watered and sprayed with it.

I commenced with a saturated solution of the material, which is 1 in 10 (approximately 1lb. to 1 gallon of water) at ordinary outdoor temperatures, and I, of course, anticipated that this would require some dilution before it could be safely applied to the roots of plants. I was, however, agreeably surprised to find that such was not the case, and that it produced no injurious effects whatever on the plants experimented upon, namely, a shrubby veronica and a cultivated strawberry. Both of these were in 3in. pots. The former consisted of four cuttings which had been struck in the pot two or three years ago and had grown into a clump about 12ins. high. The other was a Garibaldi strawberry plant which had been pegged down into the pot in the previous season. In both cases the roots were very much pot-bound, and in the case of the veronica they had made their way through the hole in the pot into the soil beneath, in which they had formed a large mass. These were severed from the others at the base of the pot, so that the veronica was severely handicapped from the start. The plants were placed side by side, and daily the roots were drenched with the alum solution and the foliage sprayed overhead with it for about a fortnight. The result was rather surprising, no damage whatever being discernible, and the experiment proved to my satisfaction that if plants of this sort are so resistant to injury from such drastic treatment as this, a saturated solution of the material may be applied to ground occupied by a crop with every confidence that no injury will result to the plants. And in this form it is much more effective than when applied in the dry state, in which form it acts more as a preventive than as a destroyer of the pests.

I think Mr. Cahen (page 94) is wrong about alum acting in the same way as common salt. As I stated in my communication of January 10th (page 25), slugs and snails can slough off salt and soot, not so alum. I also think Mr. Ansdell (page 149) is in error in stating that sulphate of aluminium (used in the Wisley experiments, and which requires lime to be added to it) is alum. Alum is a double sulphate of aluminium and potassium (or ammonium), and as it does not require lime it has the advantage over the Wisley formula that it contains no grit, and therefore does not require to be strained before use to prevent choking of the nozzles of the sprayers. I was pleased to observe that Mr. Ansdell and "H. R. C." (Wimbledon) had met with success with alum.

Soot is a filthy material to use among vegetables, and poisons, such as Paris green, are rather dangerous.—A. D. RICHARDSON, *Edinburgh.*

A REMEDY FOR EARWIGS WANTED.

SIR,—I have a bed of about 400 dwarf zinnias. They were fine plants, but now the centres and young shoots have all been eaten. I discovered earwigs were the enemy by going out late at night with an electric torch, when I found the plants covered with these hungry insects. I have placed flower-pots half full of hay on the bed, but have caught none. There are no slugs or snails. I have sprayed with paraffin soap, but of no avail. Can anyone tell me a remedy?—L. P., *Leatherhead.*

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NOTES FROM CONTRIBUTORS

WINTER FLOWERING STOCKS.

FROM time to time we are reminded of the beauty and fragrance of stocks in the garden. Often, however, the worth of those of the winter-flowering sorts for pot culture under glass is not sufficiently appreciated. It is not so much a question of the amount of warmth one is able to give them as it is of shelter. Cool treatment is best for them, and if the house is cold, it simply means that their flowering is deferred until the spring days arrive. July is a suitable period for sowing seed. Pans or boxes of soil, light in character, are, I find, better than sowing out of doors. These ought to be placed in a cold frame having a north aspect to ensure coolness for part of the day. Six-inch pots are ample for the final potting, the compost for which should be made up of loam, leaf-mould and well rotted manure. It is curious that the average owner of a greenhouse misses winter-flowering stocks. East Lothians with very little warmth will open their fragrant spikes in early winter, and almost simultaneously that excellent section Beauty of Nice in very attractive colourings, and their preparation is not difficult, but one ought not to let July pass before getting seed in.—W. LINDERS LEA.

SAXIFRAGA CRASSIFOLIA.

SOME of the larger and better forms of the Siberian saxifrages of the Megasea section are extremely useful plants. The fine branching heads of rose-pink flowers are singularly attractive in spring, especially where a bold effect is desired, and while the elephant-ear foliage is handsome at all seasons, it assumes striking autumnal tints of bronze and crimson. S. crassifolia (and I may include its near ally, the beautiful S. Stracheyi) always looks well associated with masonry. It is, therefore, a good plant for terraces, the margins of steps or for covering low retaining walls. Moreover, this saxifrage is especially happy where the root-run consists of little more than stones and old mortar, the poor fare and restricted root activity leading to more copious flowering without unduly checking foliage development.

A FINE EDGING OF S. CRASSIFOLIA.

In the illustration accompanying this note a fresh rose-pink variety of S. crassifolia is shown entirely occupying the top of a retaining wall, the plants being rooted in the stone and mortar. Incidentally, the saxifrage forms an attractive edging to the walk. Full exposure is generally desirable, and there must be no lack of moisture in spring.—A. T. JOHNSON.

CALENDULAS: THEIR CULTURE IN POTS.

THE highly coloured orange and clear lemon-tinted flowers of calendulas are prized in the garden for their usefulness for cutting in these days, but comparatively few think of them for late autumn and winter blooming under glass. A friend of mine was astonished to find that from a pinch of seed sown last August and the plants potted on in small pots, and finally in 5 or 6 in. pots, he was able to have quite a glow of colour in December and January in his greenhouse, with merely sufficient heat to keep out frost. We know their hardiness out of doors, that they will often go through a winter unhurt; that "self sowers" bring plants in our borders; but, somehow, we fail to associate their culture with that of other plants in pots. They need no fuss, the cooler the house the longer duration of bloom, and old loam with a little sand will suffice for them.—CLAREMONT.

ROCK GARDEN GYPSOPHILAS.

ALTHOUGH Gypsophila paniculata is a distinct favourite, the dwarfer species of this genus are far from being well known, and are seldom mentioned among the common rock garden flowers. Nicely placed and planted in little groups so as eventually to form close mats or tufts, they are really pretty things; they flower exceedingly well under appropriate conditions, they keep in blossom for quite a long time, and the cushions of foliage, even when not in flower, look quite attractive.

The dwarf gypsophilas must have a medium soil with good body in it, not a porous, barren sand or a stiff clay. Again, they need lime, and they will grow splendidly over limestone rock or in ground with which has been mixed some old mortar, ground shells or limestone chunks. Every year should see a top-dressing given of manure and soil, or fertiliser mixed with loam and leaf-mould, in order to keep the plants robust and strong.

G. cerastoides is a real dwarf, seldom exceeding 3ins. in height; its white flowers veined with red are very pretty and plentifully produced. G. repens is better known. It also is a trailing species, but decidedly larger than the former; its flowers are a light rosy pink. There is a large variety of repens to be had also, very distinct and still small enough to be classed as a dwarf, and we have another variety with white flowers not quite so fine as the type itself.—HUGH H. AITKEN.

A LETTUCE HINT.

UNLESS it is desired to clear the ground, here is a hint worth noting when gathering lettuces. Do not pull up the plant altogether or cut it close to the ground, but leave two or three of the outer leaves on the stump. Loosen the soil round the plants and, if needful, supply water. In a very short while two and sometimes three small buds appear at the top of the stump. These grow rapidly and soon develop into small lettuces. Quite often these second crop lettuces form excellent hearts, and they are always exceedingly crisp and tender. This is a very good plan to adopt where the first crop of lettuces has been rather a failure, particularly if that failure is due to a dry, hot season. The writer has found this plan succeed with all kinds of lettuces, and the idea is well worth carrying out.—S. LEONARD BASTIN, *Bournemouth*.

SCOTS PINE ON A CHIMNEY.

IN or near the year 1914, a flourishing tuft of something green was observed at the top of a cottage chimney that stands about 30yds. from a hedge in which there are some old Scots pines. It was soon recognised as a seedling pine. It grew on quite happily till 1921, when the severe drought of that summer brought its life to an end.

A LONELY OUTPOST.

The tree from which the seed evidently came has furnished us with another source of interest, for every few years there appears at its foot that curious large fungus, Sparassis crispa, a mass about a foot wide and ten inches high, with the colour and much the appearance of a large bath sponge. It has been recognised by mycologists as a parasite on the root of Pinus sylvestris.—G. J.

[As another of the many examples of the peculiarities of plant distribution, this note and illustration are full of interest. Probably carried and deposited by a bird, or perchance by wind (pine seeds being adapted for this mode of distribution), it is astonishing how the seed germinated in such a compost of old mortar rubble and ultimately grew into a vigorous plant.—ED.]

CATCHING SLUGS.

SLUGS have been very troublesome in my garden of late. I have reduced their numbers to almost negligible proportions in this way: In the evening a number of large cabbage leaves are secured and, after slightly warming these, are spread with lard. The leaves are then placed on the soil with the larded side downwards. The positions selected are those close to attacked plants or where signs of slugs are evident. As early as possible in the morning the cabbage leaves are examined and large numbers of slugs are collected from them and destroyed. In fact, the slugs seem to prefer the greased cabbage leaves to anything else that grows in the garden. It is important that the lard should be unsalted; if there is only a small trace of salt the leaves will be left severely alone.—L. B.

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SIMPLE GARDENING

ANTIRRHINUMS FOR EARLY FLOWERING.

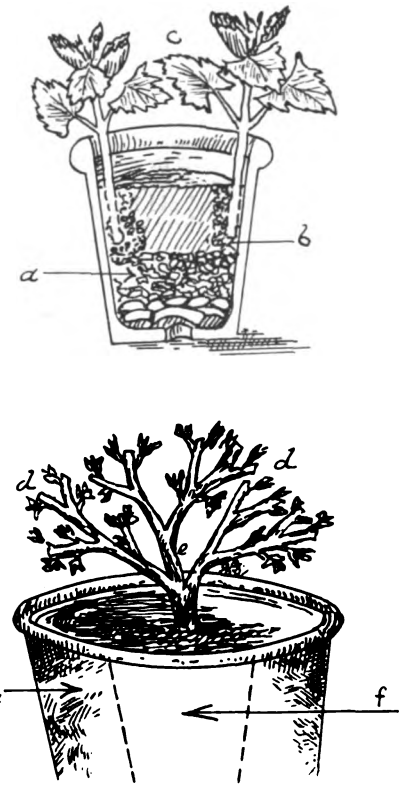
THE cultivator who wishes to have a very early display of these flowers should make a judicious selection of varieties. There is one that must be included in the list, as it is the most reliable of all, namely, Nelrose; the colour is a charming soft shade of pink; the habit of the plant is good, too. For ensuring variety of colour, the following should be included: Vermilion Brilliant, orange-vermilion; Amber Queen, canary-yellow, gold lip; Defiance, intense orange-flame colour; Golden Beauty, a rich golden yellow; and White Queen. The best effect with these plants is obtained by having few colours, but distinct, and many spikes of each. I always like to have a nice batch of them for early spring flowering. Recently, I grew as many as six hundred plants of Nelrose alone, in herring-boxes, twenty-four plants in a box, main flower spikes averaging 2ft. 6ins. in height. When these had been cut down, the plants were transplanted into an outside border, and continued to yield flowers all the summer and the following autumn, outside. The other sorts are not as suitable for such a prolonged display. Now, the plan to adopt is the following one. In July, sow the seeds in a box of good compost, outside, and duly transplant the resultant seedlings 2ins. apart, when small, in boxes. The final planting should be in large pots or boxes at about 4ins. apart. A thin layer of good rotted manure in the bottom and a little bone-meal, mixed with the remainder of the compost, will suffice. The plants should be kept in the open air till early in November.

PEACHES AND NECTARINES.

I am induced to refer to these fruits, especially those growing under glass, because of the great heat and its effect on the trees so grown, especially the old specimens. Several years ago, when we experienced a similar dry spell of weather, many old trees were killed. It is not necessary, and certainly not advisable, to keep the temperatures of the houses high, and the atmosphere dry, during such hot weather. Early in the season we do maintain a rather close atmosphere and keep out cold winds. But during the whole of the summer we should ventilate very freely indeed, opening the glass lights, and doors too, wide. The border soil should be saturated with water—not daily, but weekly, or every ten days—and, fortnightly, apply a good dose of diluted liquid manure. Except when the fruits are actually ripening, the trees should be syringed thoroughly, not merely sprinkled with water from a tiny syringe. Direct the water to the undersides of the leaves, using force. Twice each week, before syringing, lightly sprinkle soot on the border under the trees; and, once weekly, use liquid manure, rather strong, but in a small quantity. When the house is closed, or partly closed, the ammonia arising from the soot and manure will benefit the trees and help to keep down red spider. Nearly all the fruits of the later sorts have now hardened their stones and should be fully exposed to the sunshine. All shoots of the current year's growth should be tied in, approximately at a distance of 4ins. apart, as on these, next year, fruits will be borne.

FANCY AND SHOW PELARGONIUMS.

These are treated, in many ways, differently from zonal pelargoniums. Their season of flowering is restricted to spring and early summer, and I find many growers who like these plants do not know what to do with them after the flowers have faded. They have been described as dirty plants, on account of green aphides infesting them. Certainly the aphides like the plants, but their



foliage can be kept as clean as that of any other kind of plant by timely and adequate fumigation. At the end of June the plants present a rather seedy appearance and require special attention. They should be placed on their sides out in the open air and thoroughly syringed. Leave them so for a few weeks, then place the pots upright, prune back late in July or early in August, and insert the cuttings. If a very early flowering is required, prune earlier in July and insert cuttings, water the soil in the old pots and, when new shoots have made a very little growth, shake out the soil from the roots, reduce a few of the longest and re-pot the plants in small pots, to be shifted to larger ones in due course. Cold frame treatment should begin in September. Turfy loam, leaf-soil, rotted manure, bone-meal and sand will constitute a really good general compost. The letter *a* shows drainage; *b*, sand at base of cutting; *c*, cuttings inserted near side of pot; *d*, *d*, old cut-back plant; *e*, old plant beginning to grow again and its roots shaken out of old pot and re-potted in a smaller one, *f*, to be in due course re-potted in the larger size, *g*.

ENDIVES, LETTUCES AND RADISHES IN THE HOTTEST WEATHER.

Early in the springtime one wishes to trap as much sunshine as possible for the benefit of the above-named salad plants, with the exception of endive, which is, generally, raised later, from June onwards. At that time there is usually a good supply of moisture in the soil, and the latter remains moist for a considerable period. But now, one wishes to avoid such hot corners, as, unless they can be enclosed to retain moisture, the soil and situation will not prove conducive to quick, tender growth, so essential in regard to salad plants. A border facing north, north-east or north-west is an ideal one from June to the end of August, after which date we again seek all the sunshine possible to ensure, mainly, freedom from damping. The soil should be deeply dug and thoroughly broken up; those who can procure it should use rotted manure and mix it freely with the soil; or, sparingly, dry powdered fowl manure. If the latter be used, there should be 2ins. of manure-free soil on it, the roots of the plants will, in due course, penetrate to the manure and benefit. If these manures are not available, then use wood ashes and burnt soil very freely with the ordinary loam. I find such stimulants very valuable in promoting a quick and healthy growth. Seedlings, if overcrowded in such soils, will be almost useless, as radishes would run to top and lettuces and endive to very big leaves that would not withstand autumn damp and early frosts. The remedy is, then, to sow very thinly.

THE PLANT STOVE.

This structure is not as fully stocked at the present time as in former days, when many heat-loving subjects were very carefully grown. Well coloured crotons, dracænas and other plants are very effective, both in the stove and in groups arranged for effect, in the summer and early autumn. From the end of June to about the third week in August, fire heat is not required except on dull days and cold nights. If crotons are well syringed and kept in a high temperature with plenty of atmospheric moisture, especially at closing time in the afternoon, they will thrive and need not be heavily shaded, as the leaves are richer in colour than under dense shade. Caladiums also require plenty of moisture at their roots and in the atmosphere, but careful syringing and shading are necessary to prevent scorching of leaves. Coleus plants like sunshine, heat and moisture combined, coupled with judicious feeding. Cuttings of Panicum variegatum and Tradescantia zebrina, may be rooted very easily now in a sandy compost.

GEORGE GARNER.

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GARDENING OF THE MONTH

FLOWER GARDEN.

ALYSSUM AND ARABIS.—Continue to propagate by means of cuttings.

ANNUALS.—Feed occasionally with liquid manure. Water and stake.

BROMPTON AND INTERMEDIATE STOCKS.—Sow now in open ground.

CAMPANULAS.—Sow in pans of light soil. Place in frames. Prick off into boxes when large enough and return to frames.

CHINA ASTERS.—Hoe well and give a light mulch of cow manure.

CHRYSANTHEMUMS.—Give a light dressing of artificials. Stake well and spray with insecticide to keep down plant lice.

HEUCHERA.—Propagate by cuttings. Insert them in frames containing sandy soil. Keep frames shaded and closed until rooted.

IRISES.—Give a top-dressing of loam, leaf-mould and 2oz. of superphosphate per barrowload. Water after application.

LAVENDER AND NEPETA.—Insert cuttings in frames. Water, close frames and leave until rooted.

POLYANTHUS.—Prick off seedlings into boxes.

ROSES.—Keep ramblers and climbers well tied in. Water and give liquid manure occasionally. Guard against mildew and, if seen, spray with 1oz. of potassium sulphide to 2 gallons of water. Bud briar stocks in showery weather.

SPRING BEDDING.—Prick out wallflowers, myosotis, etc., in showery weather. Sow more if necessary.

HARDY FRUIT.

APPLES AND PEARS.—Thin again if necessary. Summer prune. Pinch back side growths to six leaves. Keep down pests. Water if drought continues. Net dessert pears.

APRICOTS.—Keep well watered. Tie in leading shoots. Expose fruits to sun. Mulch and net trees if not already done.

CHERRIES.—Remove nets when early varieties have been gathered and cleanse trees with good insecticide. Syringe daily with soft water and do not let the borders become dry. Thin out shoots of Morellos.

CURRANTS.—When gathered thin out old shoots and encourage basal growths of black currants. Summer prune red currants.

FIGS.—Stop strong growths. Tie in leaders and thin out laterals to enable sun to reach the fruit. Give a light dressing of artificial manure if trees bearing a heavy crop. Water trees.

GOOSEBERRIES.—Mulch trees on light soil. Keep down pests. Shake off caterpillars of magpie moth.

LOGANBERRIES.—Tie up young canes temporarily. Thin out growths.

PLUMS, WALL.—Water well. Syringe forcibly under the leaves to check red spider.

RASPBERRIES.—Cut away old fruiting wood when crop gathered. Do not let the roots become dry. Tie in loosely the new canes. Reduce shoots of autumn-fruiting varieties by removing surplus suckers. Retain sufficient strong and healthy canes. Give the latter a mulch of well rotted manure.

STRAWBERRIES.—After fruiting, clean beds, remove decaying leaves and surplus runners, and lightly fork in some artificial manure. Layer other runners. Use 3in. or 4in. pots and a compost of three parts loam, one part sand and one part old mushroom manure. Peg runners into pots. Keep watered. Prepare site for new plantation, adding plenty of well rotted manure.

VINES.—Spray if mildew seen. Wash off the following morning with clear water.

PESTS.—Watch for and destroy eggs of lackey moth. Keep down woolly aphis, aphis and thrips by spraying.

VEGETABLES.

ASPARAGUS.—Thin out seedlings to 10ins. apart. Keep beds free from weeds. Give occasional soaking of water. Mulch beds with rotted manure.

BEET.—Hoe and weed beds. Make another sowing of globe beet.

CARROTS.—Hoe regularly. Make a sowing of stump-rooted carrots for a winter supply. Give a dusting of soot directly seedlings appear.

CAULIFLOWER.—Plant out late crop. Give plenty of water during dry weather.

CELERIAC.—Draw earth up round plants, and water.

CELERY.—Finish planting out late supplies. Keep well watered, and dust with soot twice weekly. Remove decaying leaves and give a loose tie round plant. Spray with paraffin emulsion to keep down celery fly.

COLEWORT.—Make another sowing for supplies during the winter.

CUCUMBERS IN FRAMES.—Syringe freely. Give liquid manure or artificials when several fruits set.

ENDIVE.—Make another sowing early in the month. Thin out early sowings and transplant seedlings.

FRENCH BEANS.—Sow a small quantity in vacant frames. Water during dry weather.

LEEKS.—Earth up, water and give occasional doses of liquid manure.

MARROWS.—Keep well thinned and watered. Pinch back laterals. Cut fruit when young. Feed with liquid manure.

MUSHROOMS.—Make up another bed in the open, selecting a shady position.

ONIONS.—Do not feed after first week. Dust with flowers of sulphur if mildew seen. Spray with paraffin emulsion to ward off onion fly.

PARSLEY.—Make another sowing and water well.

PEAS.—Draw a little soil up round seedlings. Mulch main crop. Clear away earlies and prepare ground for winter crop. Make a final sowing of Little Marvel or Excelsior.

POTATOES.—Lift early potatoes as soon as ready. Leave on ground for a few days before storing in a dark, cool shed. Prepare the vacant ground for winter greens and turnips. Spray main crop potatoes twice with Bordeaux mixture as a preventive against blight. Give final earthing up early in the month.

RUNNER BEANS.—Keep well mulched and supplied with water. Syringe in the evening to assist setting. Keep beans picked.

SALADS.—Make frequent sowings of lettuce, radishes, mustard and cress. Water frequently.

SEAKALE.—Remove flower-stalks.

SHALLOTS.—Lift when growth completed.

SPINACH.—Make a sowing of the prickly-seeded kind.

SPINACH BEET.—Sow for autumn supplies.

SPRING CABBAGE.—Select open site for making main sowing. Use Flower of Spring, April, Ellam's Early or Early Harbinger. Water drills before sowing. Dust with soot as soon as seedlings appear.

TOMATOES.—Keep side shoots pinched out. Stop plants as soon as four trusses of fruit set.

TURNIPS.—Sow Veitch's Red Globe for winter supplies.

WINTER GREENS.—Continue to plant out broccoli, kales, savoys, cabbage, etc., on vacant ground.

SHRUBS.

CLEMATIS.—Keep growths tied in. Do not allow roots to become dry.

FLOWERING SHRUBS.—Prune after blooming such shrubs as Veronica Traversii, deutzias, weigelias and some of the spiræas. Restrict growths, prevent overcrowding and unshapely bushes. Remove flower-heads of lilacs.

FORSYTHIAS, ESCALLONIAS, HELIANTHEMUMS, ETC.—Propagate by cuttings.

HEDGES.—Clip privet, hawthorn and holly. Fork base of hedges.

FLOWERS UNDER GLASS.

CALCEOLARIAS, HERBACEOUS.—Prick off seedlings now in pans. Use a light sifted compost.

CARNATIONS.—Pot on young perpetuals. Layer malmaisons in a close frame and admit air when rooted. Layer tree carnations and take some cuttings.

CHRYSANTHEMUMS.—Attend to tying. Feed with liquid manure and soot water. Give a top-dressing when roots appear on surface. Water twice daily. Syringe with insecticide to keep free from pests.

CINERARIAS.—Pot on into 3in. or 5in. pots according to size.

CYCLAMEN.—Shift young plants into flowering pots towards end of the month. Spray plants morning and night and shade from strong sun.

GLOXINIAS.—Pot on small plants into 6in. pots. Take leaf-cuttings.

HELIOTROPES.—Take cuttings. Insert in sandy soil.

HYDRANGEAS.—Remove flower trusses when flowering finished and stand outside in the open.

LILIUMS.—Stand L. longiflorum outside. Give top-dressing to others as roots appear on the surface.

PELARGONIUMS.—Take cuttings from stock plants. Insert in boxes of sandy compost and place in frames. Make firm and water, do not give much water until growth begins. Place winter-flowering plants outside on boards. Pinch off flower-buds.

PRIMULAS.—Pot on greenhouse kinds. Shade and keep cool.

SALVIA SPLENDENS.—Shift into flowering pots. Place in a frame and keep closed for one week.

SCHIZANTHUS.—At the end of the month sow a small quantity.

FRUIT AND VEGETABLES UNDER GLASS.

FIGS.—Spray trees not bearing fruit with liver of sulphur to keep red spider in check. Attend to pinching and thinning of shoots. Thin second crop fairly severely to ensure good ripe fruit in due season.

MELONS.—Give less water when ripening. On sunny days well ventilate melons in frames. Pinch new shoots to prevent overcrowding. Keep fruits off soil.

ORCHARD HOUSE.—Stand outside in sunny position trees which have finished bearing. Syringe with insecticide. Give frequent applications of liquid manure to apples and pears.

PEACHES AND NECTARINES.—Tie in growths retained. Pinch sub-laterals. Syringe forcibly under the leaves of late varieties to keep down red spider. Do not syringe when colouring. Expose fruits to sun. Ventilate well, leaving air on during the night. Keep down all pests, including ants.

VINES.—Give a drier atmosphere to those ripening. Leave top air on during the night. Remove any plants which are needing water from the vinery. Do not cut off too much foliage if berries splitting. Pinch young vines when they reach the top of the house.

CUCUMBERS.—Top-dress with equal parts of loam, leaf-mould and manure. Syringe well.

PARSLEY.—Sow thinly in frames for winter supply.

TOMATOES.—Pot June-sown seedlings into 3in. pots and place in a sunny position. Top-dress main crop. Pinch side growths regularly.

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THE CROYDON FLOWER SHOW

RAIN was the order of the day at the annual show of the Croydon Horticultural Society, held on Wednesday, June 24th. With the exception of one or two years, this Society has always been unfortunate in having a wet day for its show. The attendance at the beginning was, in consequence, small; but as the weather improved, so, too, did the numbers of spectators. A large marquee contained the floral exhibits, and of these, roses were by far the largest class shown. Sweet peas and greenhouse plants were also well represented. There were smaller exhibits of perennials, foliage plants, carnations, violas, ferns, fruits and vegetables.

Many of the roses shown by amateurs were quite equal to those exhibited by trade growers, and it is both interesting and encouraging to see such perfect specimens from private gardens. Among twenty-four distinct varieties of roses for which Mr. A. Norman Rogers, Putney, received a first prize, were fine blooms of George Dickson, Captain Kilbee Stuart and Molly Bligh. Mme. Jules Gravereaux, shown by Mr. F. Slaughter of Steyning, was of excellent form; and nine blooms of the variety Gorgeous, exhibited by Mr. S. W. Burgess, were most attractive. Both Mr. H. L. Wettern of Oxted and Mr. S. W. Burgess carried off prizes in several of the rose classes. Mr. H. L. Wettern had excellent blooms of Irish Elegance, Red Letter Day and Jacques Vincent, arranged in vases; and Mr. S. W. Burgess showed perfect specimens of several varieties and a beautiful bloom of Miss Willmott. The Rev. F. R. Burnside also received several prizes for his roses, and in the class of twelve of distinct varieties he exhibited, among others, Avoca, Margaret Dickson Hamill and Ophelia. Mr. F. Ford also distinguished himself, and the varieties Mrs. E. J. Hudson and Gladys Holland helped him to win a first. Mrs. Foley Hobbs and Captain Oswald Fitzgerald, shown by Mr. F. G. Pocock of Warlingham, were very fine. Mr. A. H. Pullen and Mr. C. W. Edwards exhibited some very good roses of high quality.

Among the trade exhibits of roses, Messrs. Chaplin Brothers deserve great credit. Their new roses, Mrs. Herbert Nash and Lady Sydney Eardley Wilmot, together with the coppery orange of Lady Roundway and the bright scarlet-crimson of Red Star, made an effective group. In another section staged by this firm, Betty Uprichard, Lord Charlemont and Mabel Morse could be seen. Mr. J. H. Pemberton was showing many of his own seedling roses, and among them Anne, The Adjutant, Aurora and Ruth. Messrs. D. Prior and Messrs. G. Langley and Sons had prize exhibits, including many of the well known varieties; and among a group of forty-eight varieties shown by Messrs. Frank Cant and Co., Ethel Dickson, Mrs. Henry Morse, Golden Emblem, Lady Inchiquin and Gorgeous attracted attention.

Sweet peas were also a feature of the Show. Most excellent specimens were shown by Mr. F. W. Franks of Tonbridge and Mr. W. H. McAlpine of Nutfield. Their gardeners, Mr. W. Humphrey and Mr. F. C. Willie respectively, are to be congratulated on their excellent method of culture.

Messrs. Carters also were showing sweet peas, together with gloxinias, petunias, begonias and other greenhouse plants. Another meritorious trade exhibit of sweet peas was staged by Messrs, S. Bide and Sons, who were also exhibiting that useful and attractive shrub, Escallonia langleyensis. For their waved sweet peas this firm received a first prize. Mr. Thomas Butcher, the Court florist, had an exhibit of bouquets and wreaths.

A large group of delphiniums and hardy plants, staged by Mr. W. Wells, jun., added to the interest of the Show. Fine spikes of the delphiniums Amos Perry, Harry Smetham, Corry and Eva adorned the back of the stand. Papaver Mrs. Perry formed a charming patch of colour in the centre of the exhibit. Messrs. J. Cheal and Co. were showing some of their well known star dahlias as well as a few herbaceous perennials. Hardy perennials were also shown by several amateurs. Messrs. Smail and Co. exhibited alpines and perennials.

A trade exhibit of border carnations, including such varieties as Enid Lowe, Columbine, Loyalty, Mary Murray and Lieut. Shackleton, was staged by Mr. H. Lakeman. The plants looked exceedingly healthy and clean. The collection of gloxinias grown by Mr. J. Randall, gardener to Mr. F. Dyer, J.P., were much admired. The texture of the flowers and the glorious colouring are the results of good culture. A group of greenhouse plants and another of fuchsias from the same gardens were well staged. Mr. E. D. Morton (gardener, Mr. C. H. Fairs) entered for a number of classes, including exhibits of perennials, annuals, begonias, coleus and vegetables, and for several of these prizes were awarded. Many other amateurs had noteworthy exhibits of all kinds, but lack of space prevents any mention of them. On the whole, the vegetables were not up to exhibition standard, not so much in the quality thereof, but in the method of staging and dressing they fell short of the mark.

Lawn mowers, tools and various horticultural sundries were exhibited in the grounds outside by two firms, Messrs. L. H. Turtle and Messrs. E. W. and S. Rogers.

Such a successful show as this should do much to stimulate interest in horticultural matters in the Croydon district, and should also help to maintain the high standard of gardening now reached by many of the inhabitants of the neighbourhood.

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"Lady N—— is delighted with the plant and thinks the colour absolutely beautiful."—June 16th, 1924.

"I am so delighted with the Broom 'Dorothy Walpole' that you sent me last year. It has done splendidly and is like a sparkling gem in the garden—one mass of flower."—Miss C—— B——, Dawlish, Devon. May 25th, 1925.

"Everyone who has seen my plant has been astonished at its warm, glowing red."—From a Vice-Chairman, Floral Committee, R.H.S. June 8th, 1924.

At Chelsea Show (1925) a well known millionaire said:—"Your Broom has done very well with me; the colour is far better in my garden than these plants you are showing here." (This is the experience of everyone who has seen it in flower where it has been grown. It abhors any covering and the colour always becomes duller after travelling closed up to a flower show.)

"Gardening Illustrated" Report of Chelsea Show, May 25th, 1925:—"W. Watson and Sons are showing a big group of their new Cytisus 'Dorothy Walpole,' a rich-coloured crimson and quite the best variety now for colour. They had a plant of C. Dallimorei to show the improved colour of 'Dorothy Walpole' and the contrast was very marked." (So marked is the improvement that the King asked if the plant of Dallimorei was a freak.)

"The Field," May 29th, 1924 (from the pen of an ex-Curator of Kew Gardens):—"The richest coloured Broom known is one named 'Dorothy Walpole.' It is as hardy as the common Broom . . . and it is very free flowering. . . . In the open air, and especially in sunlight, the colour is rich velvety crimson . . . more attractve than any of the coloured Brooms yet seen."

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GLASSHOUSES

AT many of the gardens I visit, the deterioration both in the structure and in the use of glasshouses is constantly brought to my notice. Panes of glass will be missing, the woodwork will lack paint and some of the timber will be rotten; spans will sag, and the ventilating apparatus will squeak on rusty hinges and will, frequently, be unworkable. There is always one excuse for this deterioration, and that is economy; but is it always an economy to let a greenhouse fall into rack and ruin? As a rule, the structure of any well made glasshouse will last more than a lifetime, provided that a certain amount of care is taken to prevent deterioration going too far. An occasional renewal of timber, replacement of broken glass, and the free use of paint, are all that is required to keep a glasshouse in efficient repair: surely not a very heavy outlay! Many of the wrecks of glasshouses I have seen could have been saved if they had been taken in hand in time. But glass in a garden seems fated to be the first item in garden expenditure on which economy is practised.

The heating apparatus is a different question, for, although the structure has not altered very much in design during the last generation, greenhouse heating apparatus has improved out of all recognition, both in simplicity of design and in economical working. Hot-houses with old-fashioned heating are frequently inefficient and costly to run. There are two obvious remedies: one, to renew the heating and replace with new apparatus, such as is made by any reliable firm. This requires some outlay, but not so much as many people imagine. The other, and more economical, method is to run a glasshouse as a cold-house. Both methods have their advantages according to the use to which you wish to apply your glass.

This brings me to the point that few gardeners nowadays have any clear idea of how to run a glasshouse: they have no set plan in their mind at the beginning of the year of the uses to which it will be put during the coming season. It is used in a haphazard fashion, its capabilities are not tested, and much valuable space is too frequently lost. Part of this is due to the lack of foresight on the part of the gardener, part to the incorrigible habit some gardeners have of using a greenhouse as a hospital for sick plants, and part to misguided interference on the part of the owner, whose predilection for some particular plant makes him or her forget that a glasshouse is part and parcel of the whole garden and not a separate entity. When a garden is completely specialised or where a large amount of glass is kept, it is permissible to use a house for some specific purpose and for that alone, but in that case the gardener and owner realise its particular use and see that it is kept for that alone. But for the ordinary garden it is necessary not only to know its capabilities, but also its limitations. The same applies as much to a cold house as a house with heating. It is useless to imagine that you can fill a single house with vines or Paul Crampel geraniums and still use it successfully for all the numerous uses to which an intelligent gardener will wish to put it.

Too few people realise the possibilities of an old glasshouse, which can be used as a cold house so long as the structure is in a moderate state of repair. It can not only be used for general purposes or as a house for moderate forcing, but can be utilised for growing a multitude of that large band of plants which verge on the tender, usually by having their buds or young foliage cut by spring frosts. It can be used for rock plants, either in pots, as in the Alpine House at Kew, which is always so much admired during early spring, or after removing the staging and the piping, as an actual indoor rock garden, such as was described in THE GARDEN in the issue of February 16, 1924, page 91. It must be remembered that where the house is used as an actual garden, the soil in the beds does not get the same aeration and refreshment as soil out of doors, and so has to be renewed from time to time. With a little ingenuity, many successful uses can be found for a derelict house.

It is to be hoped, however, that, whatever use is made of a glasshouse, this entirely unnecessary idea of what is really a false economy is not adhered to. Whether you are an alpine enthusiast or a general gardener, an intelligent use of glass and a realisation of its possibilities will more than repay you. Most of all is a little thought necessary for its successful and economic running—what might be called co-operation between glasshouse, frame and general garden. They all fit into the general scheme of horticulture. E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

IRIS SIBIRICA AND ITS ALLIES, by W. R. Dykes.

CREEPING PLANTS, by D. R. Lloyd Praeger.

DISEASES AND PESTS OF VEGETABLES—I, by George Garner

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SOUTH AFRICAN GLADIOLI

IN THIS ARTICLE A FEW MEMBERS OF A BEAUTIFUL GENUS ARE DESCRIBED FROM PICTURES TAKEN IN THEIR NATIVE HABITAT. THE MAJORITY OF THESE SPECIES ARE, UNFORTUNATELY, EITHER EXTREMELY RARE OR NOT IN CULTIVATION IN THIS COUNTRY.

THAT the old order changes and gives place to new is well known, and one is reminded of this by the receipt of four photographs of South African plants from a correspondent of THE GARDEN, as they bring to mind the popularity of South African—or Cape plants, as they were generally called—in our gardens many years ago. And in this respect it is interesting to consider how the fashion in garden plants changes from time to time, for in spite of the great and universal popularity of gardening in this country at the present day, it is to a great extent confined to the cultivation of showy, decorative plants that will give a quick return. This is especially true of indoor gardening, and at the present day very little interest is taken in the many beautiful stove and greenhouse plants that were at one time so popular. In the case of the former this is somewhat understandable, as the war years and the present cost of fuel and labour have put them out of count; but in the case of greenhouse plants this does not apply to the same extent, for in most private establishments there are houses that might be used for the cultivation of many South African plants that require very little heat. And it is a matter of regret that the many beautiful South African heaths and bulbous plants are more or less lost to cultivation. True it is that the ericas and many of the bulbous plants require skilled cultivators, and at present those who have any knowledge of this class of plants are few and far between, but it only requires an interest to be taken in these plants, and cultivators would soon be forthcoming, and the writer hopes that one day the many beautiful South African plants may regain some measure of their former popularity.

Fig. 1 —BABIANA PLICATA, THE BABOON ROOT, WITH BEAUTIFUL SCENTED LILAC BLUE FLOWERS.

But to return to the photographs. Fig. 1 shows Babiana plicata (Baviaantjes or Baboon Root), or Babianer, the Dutch for baboon, in reference to the bulbs being eaten by baboons. This species has lilac blue flowers which are beautifully scented and, in common with others, was at one time in cultivation in our gardens. B. plicata is figured in the *Botanical Magazine*, Tab. 576. Some seven or eight other species are figured in the same publication, including B. stricta, of which there are several varieties, such as the beautiful B. stricta var. rubro-cyanea, in which the upper half of the perianth is brilliant blue, and the lower half a rich crimson, the two colours forming a striking contrast.

Their cultivation is quite simple, as they succeed perfectly under the same cultural conditions as are afforded freesias; a cold frame or a cool greenhouse being all that is necessary for their well-being. In the south and west, at least, they may be grown outdoors, planted in dry, well drained borders at the foot of warm walls narrow borders in front of plant houses being well suited for this purpose. Several of the species are sweet scented, B. sambucina being described as elder-flower scented.

Gladiolus tristis (avond-blom or avond-blommetje), Fig. 4, shows this somewhat sober-coloured species, the yellowish perianth having the three upper segments minutely spotted all over with reddish-brown dots; it, however, compensates for its lack of colour in being deliciously scented at night. In this country it succeeds quite well planted in a warm, well drained border, especially in front of a warm wall, the corms, of course, being lifted and stored for the winter like other gladioli. It is still occasionally met with in cultivation.

There is a variety of G. tristis known as concolor, with pale yellow flowers, without any markings, as the name implies; this variety, crossed with G. cardinalis, is said to be the parent of the well known G. Colvilei. G. tristis is figured in the *Botanical Magazine*, Tab. 272, and the variety concolor, *Botanical Magazine*, Tab. 1,098.

Fig. 3 depicts a species of gladiolus known in South Africa as the "Painted Lady." This name seems to be applied to several species, as different writers refer to different species, varying, no doubt, in the different districts. Generally the name appears to be used with reference to species and their varieties having pale pink or flesh-coloured flowers with red markings. Thus one writer refers to G. debilis, others to G. angustus, G. hastatus and G. blandus, and no doubt there are other species to which the popular name is applied. G. blandus and several varieties, as well as most of the other species mentioned have been in cultivation and are figured in the *Botanical Magazine*.

In their native state the "Painted Ladies" are usually described as growing in light, sandy soil, especially near the sea, or on sunny slopes among bushes and other vegetation; under cultivation they can be grown in warm, sunny borders as indicated for G. tristis, or they may be grown in pots in a cool greenhouse, that is, if we can only obtain them.

Fig. 2 shows Gladiolus involutus, known as the "South African Bluebell." Here again, as in the case of the "Painted Lady," various writers refer to different species, one writer referring to G. spathaceus as the "Caledon Bluebell." According to O. Marloth, this is determined by the districts in which they grow, G. involutus being found in the George and Knysna districts, G. spathaceus in the Caledon, and G. Bolusii in the

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Tulbagh districts. One writer, referring to the "Caledon Bluebell," states that it is, especially in the neighbourhood of towns, in danger of being exterminated, as it is largely collected for flower shows and decorative purposes, and too often they are not cut, but are pulled up by the roots. Fortunately, there is now some effort being made in South Africa to preserve the native flora.

It is suprising that these beautiful blue-flowered gladioli have never been introduced to cultivation, at least, I can find no mention of them, although G. gracilis (pale blue) and G. recurvus, with blue and yellow scented flowers, are both figured in the *Botanical Magazine*. All the blue-flowered species, as well as many others should prove of immense importance to the hybridist, especially when we consider what has resulted from the use of G. primulinus during recent years.

Returning to the blue-flowered species in the "Flora Capensis" and Baker's "Irideæ," G. involutus and G. spathaceus, are described as having pink flowers, while O. Marloth and other South African writers describe them as blue.

There are at least 140 to 150 species of gladioli, a few native of Europe, in the Mediterranean regions, and Orient, but the headquarters of the genus is in South Africa, over eighty species and varieties being described in the "Flora Capensis," while some eighty species and varieties are figured in the *Botanical Magazine*, no fewer than twelve being figured in Vols. XV and XVI; and out of ninety-one figures in this volume, no fewer than fifty-seven are South African or Cape plants. This will indicate how popular this class of plant was at that time.

It may be of some interest to give the original parents of our modern hybrid gladiolus. G. psittacinus and G. cardinalis are given as the parents of G. gandavensis, G. ramosus from G. cardinalis and G. oppositiflorus, G. Colvilei from G. tristis concolor and G. cardinalis, G. Lemoinei from G. gandavensis and G. purpureo-auratus, G. Childsii from G. Saundersii and G. gandavensis, while G. nanceianus resulted from crossing G. Lemoinei and G. Saundersii. From this it will be seen that very few species have been used in the production of the garden race, and one would imagine that the introduction of some of the beautiful South African species should prove of great value to the hybridist, apart from the fact that they are all so beautiful that they are worthy of a place in our gardens for their own individual grace and beauty.

J. COUTTS.

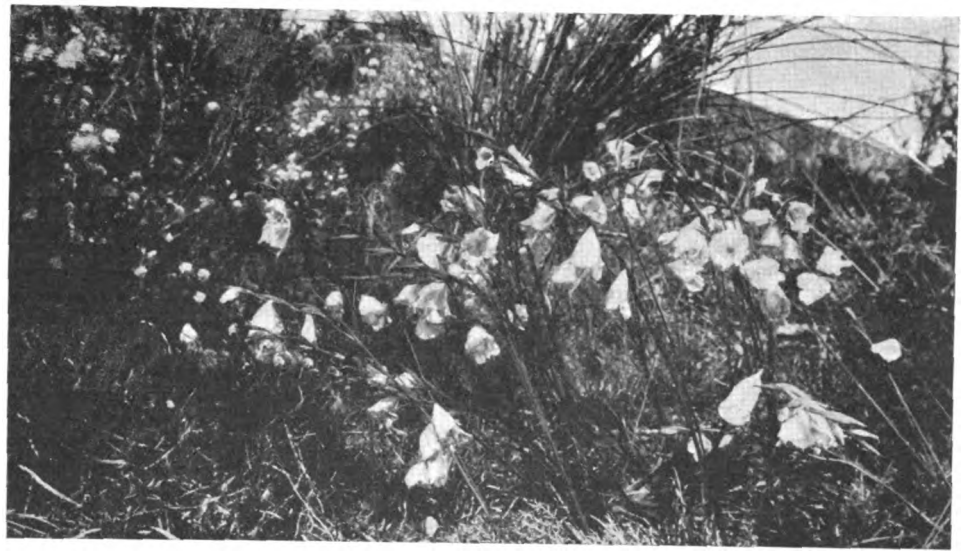

Fig. 2.—A GROUP OF THE SOUTH AFRICAN BLUEBELL, GLADIOLUS INVOLUTUS. THIS SPECIES IS FOUND CHIEFLY ON THE MOUNTAIN SLOPES IN SHELTERED POSITIONS.

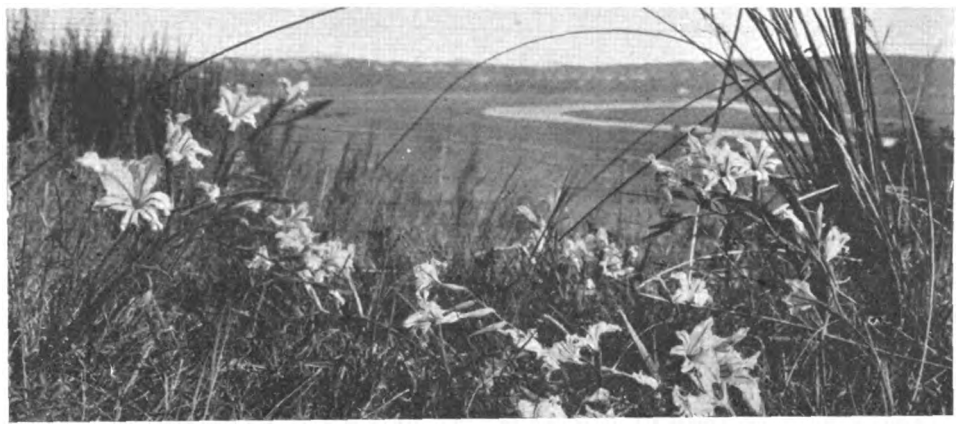

Fig. 3.—ONE SPECIES OF THE SOUTH AFRICAN "PAINTED LADIES." THESE FLOWERS ARE GENERALLY FOUND GROWING NEAR THE SEA AND THRIVE EXCEEDINGLY WELL IN SANDY SOIL.

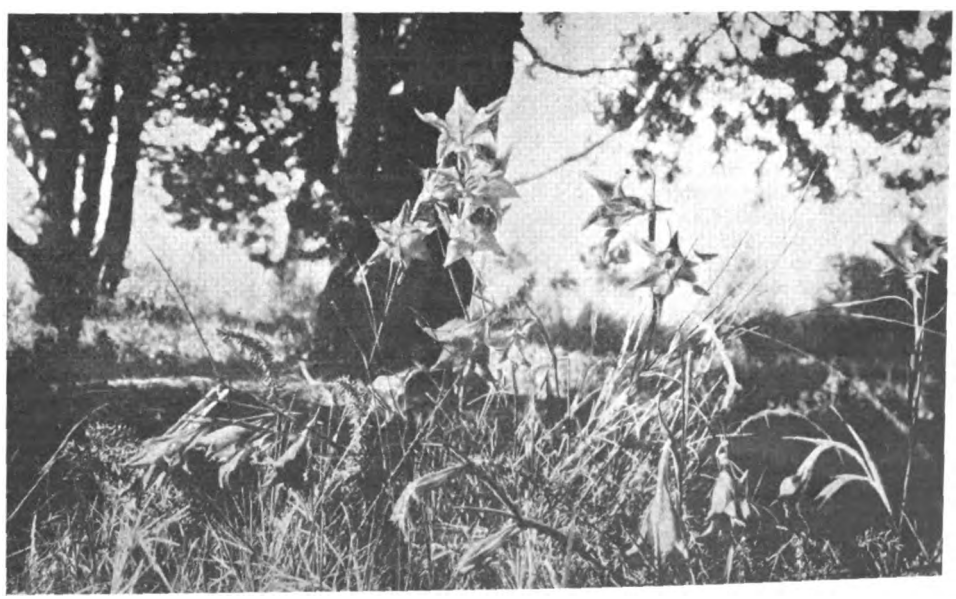

Fig. 4.—GLADIOLUS TRISTIS, THE SOBER COLOURED SOUTH AFRICAN AVOND BLOM OR EVENING FLOWER. THE BLOSSOMS ARE SCENTLESS IN THE DAY TIME, BUT EXHALE A STRONG PERFUME AT NIGHT.

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HERBACEOUS FLOWERS

WHAT exactly do we mean by herbaceous flowers? The Oxford Dictionary does not help us very much to find an answer to this question. I suppose, strictly speaking, herbaceous flowers are those that do not make a woody stem—plants that spring up when the returning sun melts the snows of winter and die down again when the sad days of autumn return—in fact, plants that hibernate. There is something wonderfully fascinating in watching for the first shoots of herbaceous flowers to push through the bare ground. They are for the most part fine, old-fashioned flowers, such as one finds in cottage gardens. But one must not be too strict, a few annuals, a dwarf bush or two may be allowed to grow with them in the border. Somehow one always associates such flowers with a border. The combination "herbaceous border" seems to conjure up something quite definite to the mind of most gardeners. But there are many ways of making one. A friend of mine built himself a magnificent house and thought he must have a herbaceous border to finish off his garden. Not understanding anything about such things he had one designed for him. Before long a plan arrived, about a yard long, beautifully coloured like a jig-saw puzzle or a patchwork quilt, and on each little coloured space was a name most beautifully written. He was so bewildered, that he packed off his plan to a nurseryman and told him to send along the plants there indicated. In due course they came and he proceeded to plant his border "according to plan." That is one way of dealing with the problem. Another is to plant them just as they come, and some very strange effects one sometimes gets! I remember one case in particular in which a common peony got into the company of a scarlet Oriental poppy. The result can well be imagined. Year after year the two colours clashed and may still be doing so, for all I know to the contrary. To my way of thinking the setting is everything. A long border with a grass path along one side looks very well and is delightful in a kitchen garden. For those fortunate enough to have a garden enclosed with old red brick walls, a more suitable setting could not be found. Tall hollyhocks behind larkspurs and lupins in front of them, smaller things between them and a good border of, say, pinks or thrift, what more could possibly be desired?

Dark, closely clipped yew trees make a wonderful setting for delphiniums and the various colours of the lupins. But the yews must not be too near or their roots will draw all the nourishment from the soil and the plants will not present that vigorous, healthy look which is their chief characteristic. In planting herbaceous flowers it is of the utmost importance to know which are going to flower together, for on this depends the colour effects. For example, what could be more lovely than the tall, pink spikes of lupins against the gentian blue of anchusa. I like to separate my herbaceous plants into groups with an eye to these colour effects, which I can get from the use of quite ordinary plants in the garden, laying on my floral colour with a bold brush like an impressionist artist. The results have always been most satisfying to the eye. Behind come the stately hollyhocks, the single varieties being much more beautiful than the double kinds. Then there are the scabious, some of which are not truly herbaceous, being biennials or even annuals. They cannot be left out, however, they are so effective if massed together, all colours—blue, mauve, pink, white and maroon. A shady corner must be reserved for foxgloves, with wonderful dapplings and markings on the bells. They, too, are not truly herbaceous, but once in the garden they sow themselves and come up year by year. Later on come the Michaelmas daisies to brighten up the back of the borders. There are now some lovely varieties to choose from, a great advance on the older types.

THE APPEARANCE OF LUPINS IS CONSIDERABLY ENHANCED IN A SETTING OF EVERGREEN SHRUBS.

Need one do more than just mention the delphiniums, the kings of herbaceous flowers. They should not be dotted about, but planted in bold groups so as not to miss the effect of a mass of contrasting blues.

Then there are the lupins of every imaginable shade: blue, yellow, white, pink, mauve and violet. Of these there is an old legend, which tells how the Blessed Virgin on her flight into Egypt, rebuked them for making such a noise when trodden on, fearing they would thus attract the attention of Herod's soldiers to the whereabouts of her first-born. What could be more lovely than their rich green leaves after a shower, each with a little globule of water resting in the centre. We must not leave out the monkshoods; there are several varieties of them, all quite interesting. A dark violet one, flowering in May before the first lupin shows colour. Another comes much later on and is of a paler shade of blue. Some are yellow and some of two contrasting colours. They are rather despised by gardeners, beloved of the bees and of use to medicine, for from them is obtained the alkaloid, aconitine. Of spiræas there are several which are well worth a place in our herbaceous garden. Of them, perhaps, the best is the pink, though, personally, I am very fond of filipendula, with its great tufts of white flowers gracefully balanced on long, slender stems rising from a large rosette of fernlike leaves.

Scarlet lychnis and geums add a bright splash of colour to the middle of the beds, to which must be added the Oriental poppies, though the newer pink shades are more beautiful, if, perhaps, not quite so exciting. Then there are the peonies, who, so Maeterlinck tells us, "have drunk their imprudent fill of the sun, burst with enthusiasm and bend forward to meet the coming apoplexy." We should grow the newer kinds, however, not the old-fashioned red one which is so difficult to blend into any colour scheme. Of yellow herbaceous flowers there is the doronicum, in the early spring, and golden rod for the late autumn.

Another yellow composite with a wonderful rayed flower is Inula Oculus Christi, a name which has a fascination in itself apart from its supposed resemblance to the eye of Christ.

Another yellow flower which brings a pleasant gleam of sunshine into the garden in May is the Welsh poppy (Meconopsis cambrica). Of white and yellow daisies we have a large variety suitable for filling the gaps between the taller plants.

"Sweet William with his homely cottage smell," and the phloxes are two very useful plants which will brighten the

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garden from June right on into the late autumn. When properly massed, with all the colours nicely mingled, these two flowers do much to add colour to the picture we are painting of the herbaceous garden.

We must have some "gold dusted snapdragons," and a few eschscholtzias to complete this picture, though neither are strictly herbaceous. Then there are the columbines, which derive their name from the Latin for a dove, from the fanciful resemblance of their flowers to a bevy of doves with their heads close together, as if in conversation.

Though the long spurred varieties are far and away the most beautiful, with their lovely contrasting colours of the most delicate shades, all columbines are worth growing, even the common wild kind.

In the foreground there are one or two other plants which deserve mention. Tradescantia, named after John Tradescant, who, in the seventeenth century, made a collection of flowers, which he gave to Elias Ashmole, who in turn presented them to the University of Oxford. This is the Virginian spiderwort, though cottagers call it the Widow's Tear, presumably from its purplish blue flower. It has only three petals, like its cousin in the greenhouse. Then there is the Bleeding Heart (Dicentra spectabilis), with its curiously shaped flowers, which are supposed to bear a resemblance to rosy-hued hearts.

Lungwort (pulmonaria), the blue and pink flowers of which are the first to open year by year, is worth a place in some shady corner, for the dark green foliage, splashed with white, which succeeds the flowers in June. Though this by no means exhausts the possibilities of herbaceous flowers, mention has been made of some of the best of them.

There are various ways of getting herbaceous plants. We can buy them from a nursery, we can obtain them by barter from our friends and we can raise them from seed. This last method, though it requires considerable patience, is by far the most interesting to the true gardener. There is a great fascination in watching for the first characteristic leaves to appear. Then we have the prolonged pleasure of seeing the plants getting larger and larger until they are fit to take their place in the herbaceous garden itself. Finally, there is the excitement of the first flowers. This is especially the case with the lupins and larkspurs, for, if it is mixed seed or seed we have saved ourselves, there is no telling what undreamt-of beauty is about to be revealed.

EDWARD CAHEN.

A FINE ORNAMENTAL TREE

DAVIDIA INVOLUCRATA is certainly, when carrying in spring its large, hanging, paper white bracts, one of the most striking trees in existence, quite distinct from anything we have been used to so far. A member of the family Cornaceæ, it was first noticed by Father David in 1869 on high elevations in Tibet. Twenty-eight years later, in 1897, Father Farges, a missionary in Szechuan, sent to the late Maurice de Vilmorin at Les Barres ten seeds. The inscription on the seed bag ran: "Davidia, grows in moist places; valuable seeds, requiring special care." Only one plant, still existing at Les Barres, arose from these seeds. In the years 1899–1902 Mr. Wilson, during his first expedition to China, was much impressed by the beauty of the tree and sent numerous seeds to the famous firm of Veitch, where thousands of seedlings were raised. This marked the introduction of the plant into the horticultural world.

Curious to relate, the decorative value of davidia does not seem, so far, to have been fully realised. True, glowing reports have been made repeatedly about it by those who had the good fortune to see this rare tree in its home, but it is nearly always only as isolated specimens that one meets it in dendrological or amateurs' collections. What if any bold gardener had had the idea of planting a whole avenue of it? The tree here represented, although the impression given is a very poor one indeed to anyone, like the writer, who has seen the plant in all its gorgeousness (many bracts had already fallen to the ground when the photograph was taken) gives some idea of what would have been the result. This is one of the first specimens sent out by the Coombe Wood Nurseries, planted some twenty years ago in a site that apparently suited it admirably, that is, moist and shaded from several directions by tall conifers. It now attains over 30ft. in height. The owner is Mr. Gerard, who spends all his spare time in his arboretum of La Fosse, near Vendôme, France. In May of this year the sight was truly unique. Thousands of bracts attaining as much as 8ins. long and 4ins. wide completely smothered the tree from top to bottom, waving right and left at the slightest gust of wind. This specimen is, I believe, one of the largest in existence in Europe. It had never, so far, flowered so profusely. On its upper part, unfortunately little noticeable in the illustration, owing to effects of light, there were certainly more bracts than leaves!

A FINE SPECIMEN OF DAVIDIA INVOLUCRATA OVER THIRTY FEET HIGH AT LA FOSSE ARBORETUM.

As is well known, modern botanists have divided the once monotypic genus of davidia into three species: D. involucrata, D. Vilmoriniana and D. læta, according to pubescence (absent or present) and colour (glaucous or yellowish) of the underside of the leaves. The specimen here figured answers to the description of D. Vilmoriniana. From the purely horticultural point of view, however, perhaps it is better not to complicate matters and to retain only the name of D. involucrata for all cases. As regards showiness and general appearance there is little difference between the plants.

Davidias like rich, deep soils, moist atmosphere and some shade. They are admittedly shy flowerers at first, but increase their flowering capacity considerably when a certain age and size have been attained. Their hardiness is complete, except perhaps in case of very late frosts, when young shoots can be scorched to a certain extent, a fact that rarely happens, however, for the tree starts rather late into growth in the spring. Now that seeds are produced close to nurseries and plants accordingly easily propagated (which was far from being the case some time ago), it is to be hoped that this most beautiful tree will find its way into gardens more and more where the soil and position prove favourable.

CH. LERAY.

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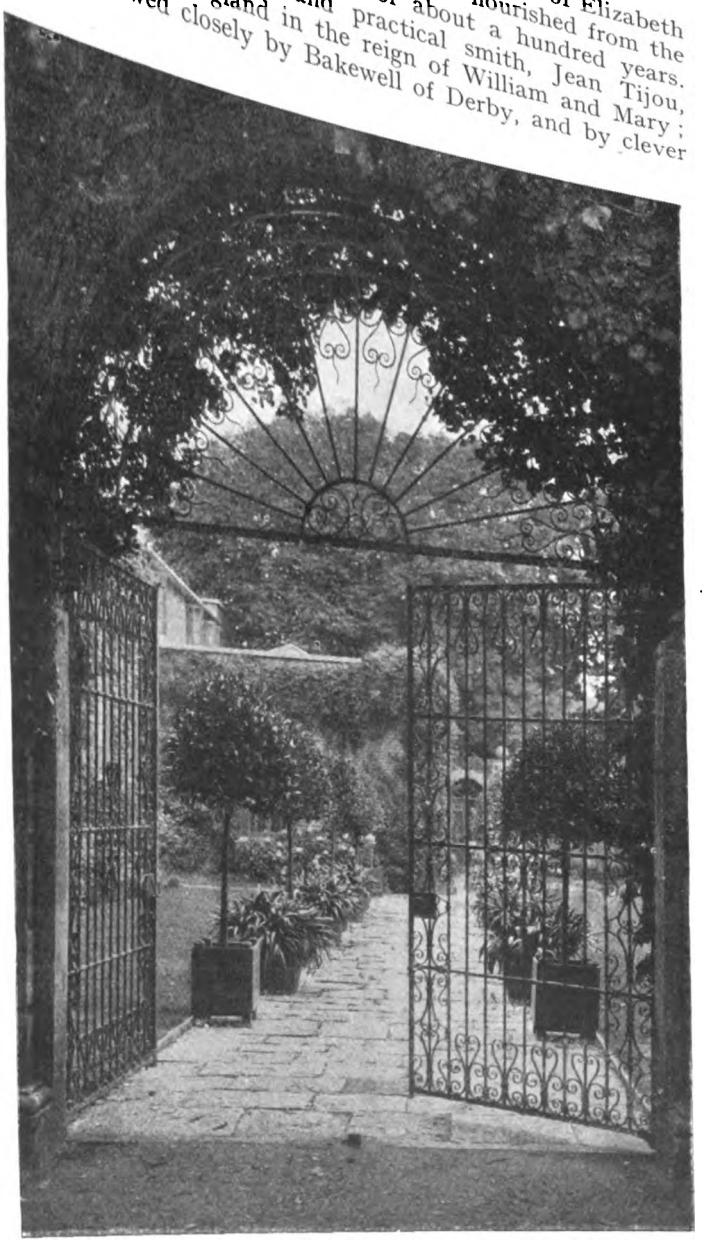
GARDEN GATES

BY GERTRUDE JEKYLL.

...s are going up and ways of entrance ...onsidered, the possibility of a beautiful ...s often overlooked—this is an iron gate of ...rden design. Such a chance is lost when, as is so often ...es when the wooden door is a necessity, as where a cold ...aught of wind may be injurious or where there is something unsightly that it is desirable to hide. Though in these notes it is only some simpler form of gate that is being considered, it is well to remember, and to see when occasion allows, any of the fine old gates that exist at the entrances of the grounds or gardens of our great houses, or such as are accessible to everybody at Hampton Court.

Iron gates were rare in England in the reigns of Elizabeth and James I, but the art of making them flourished from the end of the seventeenth century for about a hundred years. That wonderful designer and practical smith, Jean Tijou, was at work in England in the reign of William and Mary; he was followed closely by Bakewell of Derby, and by clever



A BEAUTIFUL THOUGH SIMPLE GATE IN THE ITALIAN STYLE.

smiths from Wales and the West Country, and a number domiciled in and about London. Some Italian gates were imported early in the eighteenth century. Their general design was quite different from that of the English smiths, for it was more free in line and was composed of much scrollwork, with a further enrichment of acanthus foliage and flower forms. There are examples of such work by the clever Welsh smiths, the brothers Roberts, who wrought in the earlier decades of the eighteenth century; but they never acquired, or possibly never attempted, the almost riotous freedom and sumptuous enrichment of the true Italian work.

The usual gate had a general filling of vertical bars; the filling thickened at the bottom with additional rods known as dog-bars. These served a double purpose: the practical one of keeping out dogs, and the other, of pleasing the eye by giving extra weight and solidity to the base of the gate. Then, at

A DESIGN WHICH, ALTHOUGH DECORATIVE AND ENHANCED BY THE PIERS, IS YET RESERVED.

convenient hand-height, came the lock rail, often with some filling of ornament, and also satisfying the eye with a distinct horizontal treatment at about one-third of the height; the remainder upward being of plain bars. In the more important gates there was a finely designed and wrought overthrow, with scrollwork, and the initials or some heraldic emblems of the owner. But in the simpler gates this was omitted altogether.

Where there are iron gates there should be brick or stone piers, if not of importance, at least of some size and solidity.

A FINE, STRAIGHT DESIGN IN IRONWORK.

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In the finest examples they were of elaborate architecture with sunk panels or niches, and sometimes with a complete entablature. These would be surmounted by stone or leaden urns or heraldic beasts. In the case of the lesser type of gate the piers were commonly finished with stone balls.

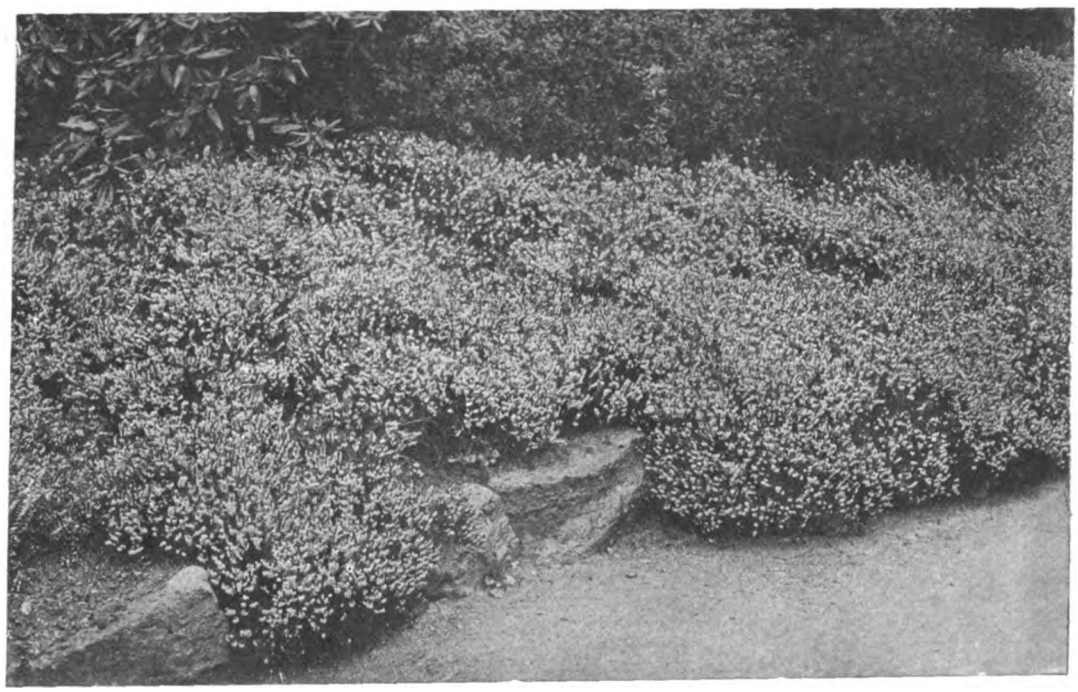
There are many places where really fine piers have become completely smothered with ivy or ampelopsis. If the gates and their piers have any merit, such overgrowth should never be allowed. This may be generally known now, but it is well to repeat the warning, because these rampant things grow quickly and, though they may have been cleared a few years ago, they may again be threatening to obscure good building. There is no reason to forbid any reasonable planting that may partly come over the piers, but it should be carefully watched and either guided or checked, as may be desirable.

Iron gates have to be painted. In our climate the most generally satisfactory colour is a dark grey inclining to a bluish tone. There is no harm in what is sold ready mixed as "dark slate," but it is the better for a fair admixture of dark blue. The French commonly paint their garden ironwork with red lead; it is good for the iron, but not pleasing to the eye. The pretty pale green with which they paint their garden tubs and seats is also unsuitable for iron, for which, at least in England, the dark blue-grey is much to be preferred.

SHRUBS FOR A SHADY ROCK GARDEN

FAR more recognition has been given of late years to the value of the shady slopes of the alpine garden and the many beauties that these display. Here we find numberless beautiful anemones, haberleas, mossy and encrusted saxifrages, ramondias, primulas, etc., flooding the slopes with a welter of beauty and colour over many months of the year. If, however, we miss our shrubs, the inevitable flat look is unavoidable and—perhaps without knowing why—we miss something that is essential to the completion of a really beautiful picture.

Happily, the range of subjects that may be included among our possible varieties is a fairly wide one—quite sufficient, at any rate, to obviate all chance of monotony. It is worth while noting, too, that the choice may be made to cover an equally wide range of soils, and those species that are most likely to succeed upon the particular soil in which you propose to plant should not be left out of consideration. For example, if you have a shaded peat bed, azaleas are worth special attention, though one must confine plantings to the right kinds. One may paint a whole slope in blazing glory in early summer by judiciously massing amœna, with its vivid rose crimson flowers; Hinodegiri, rising to 2½ft. with fiery red flowers; Maxwelli, vivid carmine red; occidentalis, white and very sweetly scented; and Yodogawa, semi-double and pale lavender pink. If these are indulged in in any quantity, the massing will become a somewhat expensive matter, but it is possible to produce superb effects by using a few plants in a concentrated area. Once planted such a grouping improves every year, especially where the beds are heavily dressed with leaf-mould each spring. It must not be forgotten that buds, although expanding in spring, are formed during the preceding summer, and therefore it is most important to see that the roots are never allowed to become dry.



AN EFFECTIVE DRIFT OF ERICA CARNEA, THE WINTER-FLOWERING HEATH.

Requiring precisely similar soil and cultural conditions, near relatives of the above, Rhododendrons præcox and ferrugineum are both splendid plants, and have the gift of appearing particularly fascinating as single specimens in the small garden. Where there is more sand in the peat a charming little shrub—so dwarf that it scarcely raises itself above the soil—is to hand in Sedum Lyonii. The foliage of this somewhat resembles the myrtle, and each stem terminates in a cluster of rosy white flowers. Owing to its extremely dwarf stature, the plant must, of course, be kept well forward, otherwise it will be entirely lost. Either on sandy loam or peat success will attend the planting of Daphne Mezereum, one of the first plants to break the winter by flowering. D. Cneorum, the garland flower, is quite a different plant, forming dwarf rounded bushes of dark green foliage smothered in spring with deliciously fragrant heads of pink flowers.

For splendid effects in any soil it would be difficult to excel Cotoneaster humifusa, the vivid brilliance of which is produced entirely by the berries. The growth is of the trailing order, resting almost flat on the ground, and the whole plant presents a most gorgeous colour picture in September and October when the leaves become scarlet and crimson and gold, the berries being brilliant red. Another charming little berried shrub that is not, however, to be distinguished by the word showy is Berberis dulcis nana, an evergreen bush producing yellow flowers very freely, these being succeeded by blue berries.

The partridge berry, Gaultheria procumbens, is extremely pretty for massed plantings in any shady spot where the soil consists of peat or leaf mould, and gives the effect of a carpet of blue green leaves over which are snow white flowers followed by fine crimson berries. Succeeding magnificently in any soil that is free from lime there are two species of erica that will flourish in shade or partial shade, the latter, of course, being preferable. Erica carnea may be obtained either in white or vivid rose, and both are splendidly effective massed according to the size of the garden. Erica vagans gives us still more variation in colour, for it may be procured in blush white, pure white, deep red and a so-called scarlet which means, as usual, a fairly good red.

H. W. CANNING-WRIGHT.

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SUMMER ROSE SHOW

...the National ...great annual ...was held at Regent's ...and 4th. Although the ...somewhat threatening, the ...interest good and indicated the ...ional flower. The arrangements for ...cellent and the committee, especially Mr. Courtney Page, the Secretary, is to be congratulated on them.

The majority of the blooms were in really fine condition, considering the long spell of drought which preceded the Show. The wealth of colour could only be adequately described on canvas, and on all hands one interest and instruction, especially when dealing with some aspects of the clean and healthy cultivation of the rose.

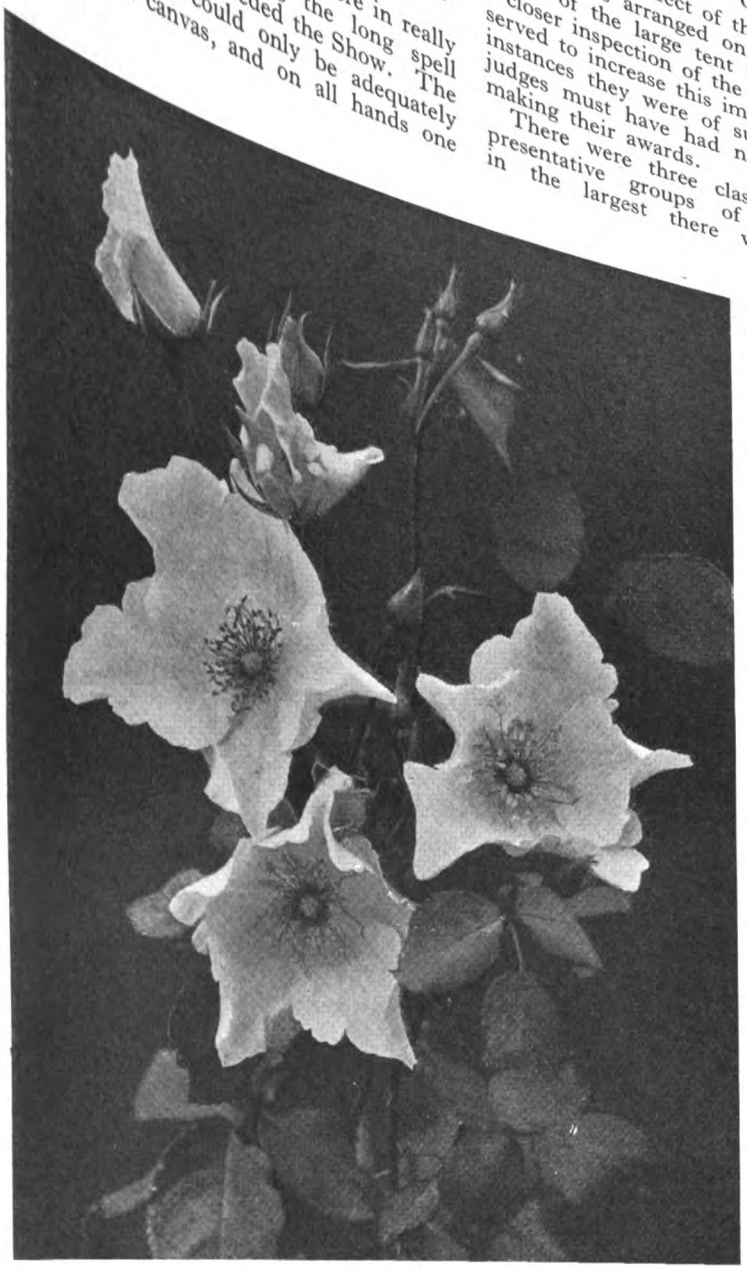
THE GROUPS OF ROSES.

The general effect of the generous groups of cut roses arranged on tabling along the centre of the large tent was excellent, and a closer inspection of the individual exhibits served to increase this impression. In most instances they were of such merit that the judges must have had no enviable task in making their awards.

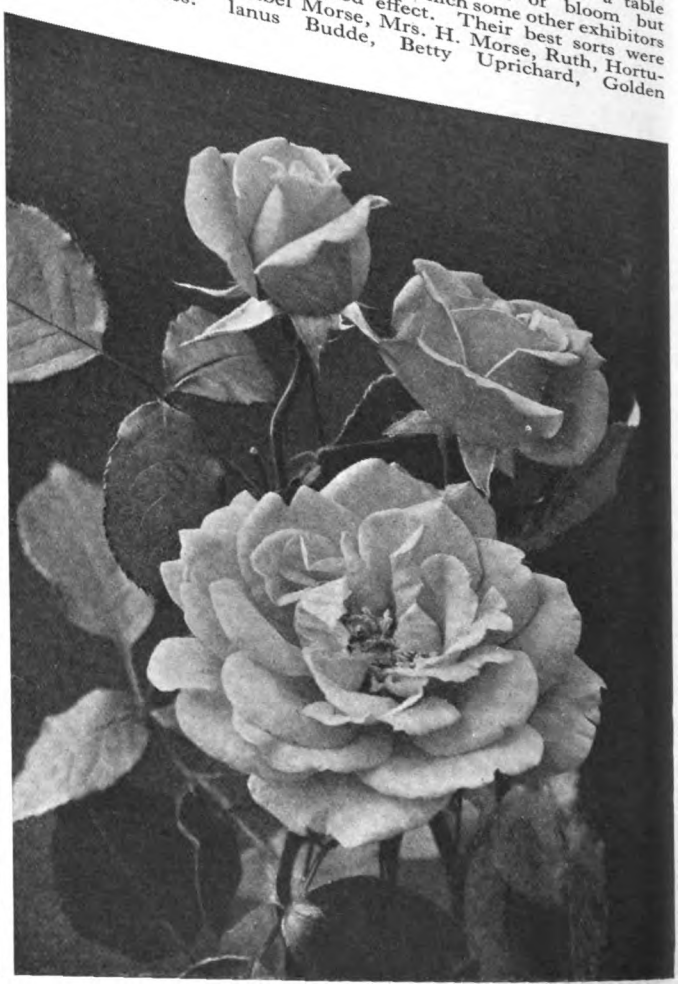
There were three classes for these representative groups of cut roses, and in the largest there were eight tables.

ment of linked pillars with baskets at the base, and the group was attractively edged with polyantha varieties. The baskets were filled with fine blooms of Lady Roundway, Lady Inchiquin, Mabel Morse and other sorts. Admirable groups were also arranged by Messrs. F. Cant and Co., Messrs. B. R. Cant and Sons and Mr. J. H. Pemberton.

There were four of the medium-sized tables, and here the first prize was awarded to Messrs. A. J. and C. Allen for a table which contained a wealth of bloom but lacked the edgings which some other exhibitors used to good effect. Their best sorts were Mabel Morse, Mrs. H. Morse, Ruth, Hortulanus Budde, Betty Uprichard, Golden



THE DEEP SHELL PINK BLOSSOMS OF DAINTY BESS.



SCARLET GLORY, AN EXCELLENT CRIMSON SCARLET SORT.

heard remarks of appreciation on the skill and patience shown in cultivation by the leading rose growers in the country. It is astonishing how, year after year, the flow of novelties is kept up, and this year is no exception. Many fine new varieties were staged, and it is somewhat difficult to discriminate between their individual merits. There can be no question that improvements in form, habit of growth, colour, fragrance and flower production have taken place rapidly within the last few years, and it is difficult to forecast what the future holds in store for us in this connection.

In addition to the main exhibits of roses, other flowering subjects in season, such as delphiniums, anemones, sweet peas, and carnations, were also staged. Another notable feature was the number of exhibits of sundries. Many of these exhibits were of great

The champion trophy was awarded to Mr. E. J. Hicks for an arrangement of pillars and large vases which displayed a great wealth of excellent bloom. The corner pillars were made up of Ophelia, Joanna Bridge, Mrs. H. Stevens and Climbing Golden Ophelia. The stands contained Los Angeles, Mabel Morse, Charles E. Shea, Mrs. E. Hudson, Betty Uprichard and other valuable sorts. The colour arrangement was excellent and the group was well finished. The chief feature of the second prize group was generous baskets of roses which Messrs. Alex. Dickson and Sons filled with Betty Uprichard, George H. Mackereth, Mrs. Wemyss Quin, Gwynne Carr, Mrs. Henry Morse, Golden Emblem, Shot Silk, Mrs. Henry Stevens and other admirable roses. The third prize was awarded to Messrs. Chaplin Brothers for a fascinating arrange-

Emblem and Souvenir. Messrs. Henry Morse and Sons, who were second, had linked pillars of Vesuvius, Etoile d'Holland, Betty Uprichard, Mrs. Henry Morse and Mabel Morse. Mr. Walter Easlea, who was third, had an uncommon and successful arrangement of pillars and small hanging baskets which made a graceful group.

The smaller group was so successful with exhibitors that the tables overflowed into an annexe. Mr. J. Mattock, who was first, had a charming arrangement of vases of Lady Inchiquin, Margaret Dickson Hamill, Betty Uprichard and Rev. F. Page-Roberts on stands rising above vases of Moonlight, Mabel Morse, Los Angeles and similar varieties. Messrs. Jarman and Co. were second with a table of Mrs. H. Morse, Paul's Scarlet Climber, Souvenir de Claudius Pernet, Lady Curzon and other

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sorts. Mr. F. J. Edwards and Messrs. J. Jefferies and Sons were both awarded third prizes.

The A. C. Turner Cup, which is offered for a collection of thirty-six varieties, was won by Messrs. A. Warner and Son with an admirable exhibit in which Independence Day, Golden Emblem, Mrs. Henry Stevens, The Queen Alexandra Rose and Red Cross were prominent. Messrs. F. Cant and Co. were second with excellent vases of Padre, Archie Gray, Maud Cuming and Mrs. T. J. English. Mr. J. Mattock was third in this good class.

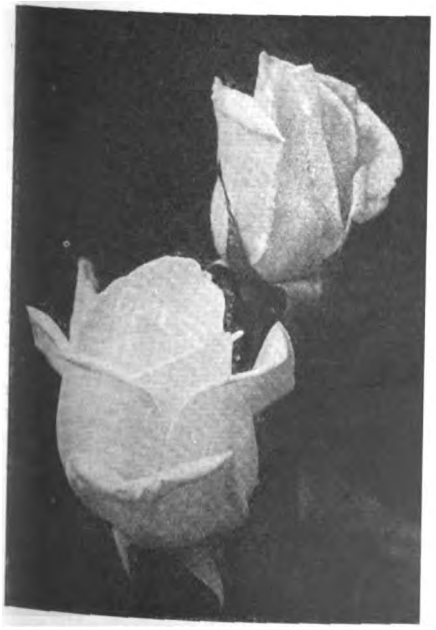
The best eighteen varieties of decorative roses were shown by Mr. G. Prince, who had admirable vases of Mrs. H. Stevens, Shot Silk, Souv. de Claudius Pernet and Betty Uprichard. Mr. F. Spooner, the second prize winner, showed K. of K., Innocence, Paul's Scarlet Climber and Isobel. Mr. G. Lilley was third.

EXHIBITION ROSES.

The championship trophy, which is offered for seventy-two distinct blooms of exhibition varieties, always induces a keen competition, and this year the trophy was won by Messrs. F. Cant and Co. with an admirable collection of good fresh blooms in which the colours were artistically arranged. The chief varieties were Dean Hole, Mildred Grant, Lady Ashtown, Clara Curtis, Medea, Admiration, Archie Gray, J. L. Mock and Mildred Grant. Messrs. B. R. Cant and Sons were a very good second, and they included excellent blooms of The Queen Alexandra Rose, Mabel Morse, Mabel Turner, Manifesto, Lady Inchiquin, Rev. F. Page Roberts and Nellie Parker. The third prize was won by Messrs. D. Prior and Son, who included a good new pink rose in Mrs. Murray Allison and also showed C. K. Douglas, Cleveland and Rev. F. Page Roberts of great merit.

The collections of thirty-two varieties in three blooms of each were mostly of high merit. Messrs. B. R. Cant and Sons were first, and they included trios of Rev. F. Page Roberts, Horace Vernet, George Dickson, A. Hartmann, Edith Cavell and Captain Kilbee Stuart. The second prize collection of Messrs. F. Cant and Co. was characterised by the high colour of many varieties, such as Mrs. Henry Morse, Mrs. G. Marriott, George Dickson, H. D. M. Baron, Ethel Dickson and Alex. Ernslie, which were admirable.

The China trophy, offered for forty-eight blooms, distinct, was won by Mr. C. Gregory,



THE LARGE OVAL FLOWERS OF MRS. BEATTY.

who included H. V. Machin, Mrs. Henry Bowles, J. B. Clark, Mabel Morse, Earl Haig and Mme. Jules Gravereaux in a praiseworthy exhibit. Messrs. Jarman and Co. were a close second, and their excellent collection included Premier, Joseph Welch, Mrs. Sam Ross and Freda. Mr. George Prince was third.

The first prize in the extra class for the above divisions was won by Mr. H. Drew, whose twenty-four fine blooms included Mrs. E. J. Hicks, Mabel Morse, Coronation, Edith Cavell and Mrs. H. R. Darlington. Mr. E. J. Hicks, the second prize winner, had good examples of Constance Soupert, Mrs. George Norwood, Maman Cochet, White Maman Cochet and Mabel Morse. Mr. G. Burch was a good third.

In the class for trios of eight varieties, the quality reached a high standard of excellence. Mr. George Prince, the first prize winner, included Mrs. George Marriott (of which one bloom was the silver medal tea rose), Mrs. C. Hall, H. V. Machin, Earl Haig and Ethel. Messrs. Jarman and Co. were third, and they included Mrs. C. Lamplough, Joseph Welsh, Mme. Jules Gravereaux and Mrs. C. Hobbs. Mr. H. Drew was third in this excellent class.

The tea and noisette roses were better than might have been expected. Messrs. C. Longley and Sons were first with eighteen fresh blooms of such sorts as The Bride, W. R. Smith, Molly Sharman Crawford and Mme. Jules Gravereaux. Mr. G. Prince won the second prize with large blooms of Maréchal Niel, Mme. Jules Gravereaux, Mrs. Foley Hobbs and Mrs. H. Taylor; while Messrs. D. Prior and Son were third.

The best twelve blooms of any new rose distributed since January, 1921, included Marcia Stanhope, Enid Charlemont and Mabel Morse, shown by Mr. J. Mattock. Mr. E. J. Hicks in his second prize collection included Lady Inchiquin, J. G. Glassford and W. Hordes.

The best twelve of any similar variety were vivid blooms of Captain Kilbee Stuart, shown by Messrs. D. Prior and Son. Marcia Stanhope, shown by Mr. H. Mattock, was second; and Lady Inchiquin, by Mr. G. Prince, was third.

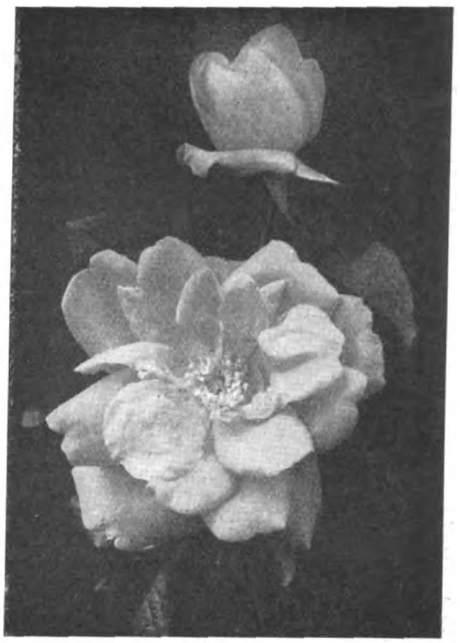
NEW AND NOTEWORTHY ROSES.

DAINTY BESS.—Probably the best hybrid tea single variety which was on show. The flowers are composed of beautiful crinkled and waved petals of a fine delicate pink shade, while a deeper shade is to be found on the reverse of the petals. It appears to be very floriferous and a fine contrast is provided by the foliage. It is certainly one of the best roses of the year. The flowers have a slight haunting fragrance. Awarded a gold medal. Shown by Mr. W. E. B. Archer, Ashford.

GWYNETH JONES.—This is certainly one of the most beautiful and decorative pernetiana varieties we have seen from the point of view of colour, which is unique. The flowers are semi-double, composed of petals of good texture and of a shade of fiery orange. It is indeed striking. The cluster of yellow anthers provides a vivid contrast in the flower itself, while these stand out from the bright green foliage. The flowers have a slight perfume. This variety received a gold medal. Shown by Messrs. McGredy and Son.

MRS. J. HEATH.—A good bushy hybrid tea variety bearing large-sized and pointed blooms. In the bud the colour is a mixture of orange crimson, but on expanding the petals become a shade of yellow tinged with red, the centre becoming deep yellow. It should prove a fine all-round variety. Shown by Messrs. McGredy and Son.

LADY F. STRONGE.—Another variety in hybrid teas of unique colouring. The large, well formed blooms are reddish to violet rose colour, shading to yellow at the base of the petals, which are of good size and



THE HANDSOME BLOOMS OF GWYNETH JONES, A GOLD MEDAL VARIETY.

substance. Shown by Messrs. McGredy and Son.

CECIL.—A fine pernetiana variety carrying large single flowers with spreading petals of a light yellow shade with a central cluster of deeper yellow headed stamens. Shown by Messrs. B. R. Cant and Sons.

MRS. BEATTY.—An excellent hybrid tea bearing large, handsome, long, oval-pointed blossoms of perfect shape. The petals are of good substance and of a shade of delicate lemon yellow, which is all the more striking against the dark glossy green foliage. Awarded a gold medal. Shown by Messrs. B. R. Cant and Sons.

RICHARD E. WEST.—Splendid flowers of a good yellow colour characterise this hybrid tea variety. The petals are markedly reflexed. Shown by Messrs. Alex. Dickson, Limited.

SCARLET GLORY.—An admirable hybrid tea variety carrying medium-sized blossoms of a good crimson scarlet colour. The petals are of velvety substance. The colour has the tendency of all crimson varieties, although not marked to any degree, to turn slightly blue on the margins of the petals. The flowers are also well scented. Shown by Messrs. Alex. Dickson, Limited.

GEORGE H. MACKERETH.—A very good crimson hybrid tea, carrying blooms which are sweetly fragrant. Shown by Messrs. Alex. Dickson, Limited.

DUCHESS OF YORK.—A fine decorative sort, bearing blooms of a wonderful colour. The centre is orange, shading outwards to pinkish and light yellow tones. Shown by Messrs. Alex. Dickson, Limited.

MRS. S. W. BURGESS. — A vigorous decorative hybrid tea variety with blooms of a cream orange colour, with a slight fragrance. Shown by Mr. S. W. Burgess, Tonbridge.

GOOILAND BEAUTY.—A cross between Golden Emblem and Sunburst, bearing blooms of a clear golden orange colour, which shades off to creamy yellow. The flowers are large and semi-double. Shown by Messrs. D. Prior.

KIRSTEN POULSEN.—A single dwarf polyantha sort, carrying numerous flowers of a deep rose red colour. Shown by Messrs. D. Prior.

Owing to shortage of space, the amateur and artistic classes, along with further notes on new roses, have unavoidably been held over until our next issue.

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SUMMER PESTS OF THE ROSE

THE novice on consulting his text-book on roses and their enemies may well be appalled at the many and diverse insects and fungi that are probably mentioned. Of fungus diseases there will probably be round about a dozen, while of insects the names are legion. But, luckily for his peace of mind, the great majority are only very occasional in their visits to cultivated roses and may be ignored.

Diseases fascinate the scientist, who is somewhat akin to collectors of plants in that he gloats over the number he can tabulate. It is well that insect and fungus attacks should be recorded, with, where possible, suggestions for combating them. But this should always be prefaced by a plain statement of their relative unimportance to the cultivator. This the National Rose Society very wisely does in its most valuable little book on "The Enemies of the Rose," and heartens the amateur by stating that he is likely to be seriously troubled by only grubs and caterpillars, green fly and mildew.

During last spring the infestations of green fly on roses and, indeed, on most hardy plants, were more serious than usual. But within the past week or so there has been a marked decrease in their numbers. For destroying and, what is more important, preventing green fly a very mild insecticide suffices. In fact, during the growing season any strong corrosive wash is likely to do serious harm to the bushes as well as kill the green fly. It is only necessary to use a solution of quassia chips and soft soap, or some similar wash, which will adhere to the aphides and choke the breathing pores. The quassia chips should be boiled for a considerable time. Some say for twelve hours, but this period can be materially shortened if the quassia chips are first soaked in cold water for a week or so. A recommended formula is 2½lb. of quassia chips and 1lb. of the best soft soap (do not procure a cheap type, as this will contain an excess of soda) to 25 gallons of water. The soft soap should be thoroughly dissolved in boiling water and well stirred into the quassia extract before being added to the bulk of the water. This is an effective and economical fluid, but for those who have neither the time nor inclination for preparing it there are such proprietary mixtures as "Abol," "Nico Soap" and "Compound Quassia Extract," which are advertised in THE GARDEN. For all purposes it is important to use exactly the recommended quantity of all prepared insecticides and fungicides.

Although not serious in its effects, the "cuckoo-spit" or "frog-hopper" is often a nuisance on rose bushes by reason of the unsightly froth-looking covering of the nymphs. The simplest method of clearing them is to syringe forcibly with clear water so as to remove the froth and then to spray with one of the insecticides above mentioned.

In some seasons the leaf-rolling sawfly is fairly prevalent, and in addition to rendering the bushes very unsightly, this insect is actively harmful, largely by preventing the leaves from exercising their proper functions. In this case the leaflets which contain the greyish larvæ are rolled up tightly and, once the pests have a hold, there is nothing for it but to hand-pick and to destroy the affected leaves. In the early stages of an attack it is well to spray with a nicotine wash immediately after the hand-picking of the affected leaves.

These are the most important of the sucking insects which are likely to trouble the rose grower, and while a few of the biting insects, such as the leaf-cutting bee, which bites out circular pieces of the foliage to form its nest, may disfigure the bushes, they are more annoying than harmful and rarely visit bushes that have been sprayed fairly regularly with a quassia extract, as this seems to render the leaves distasteful.

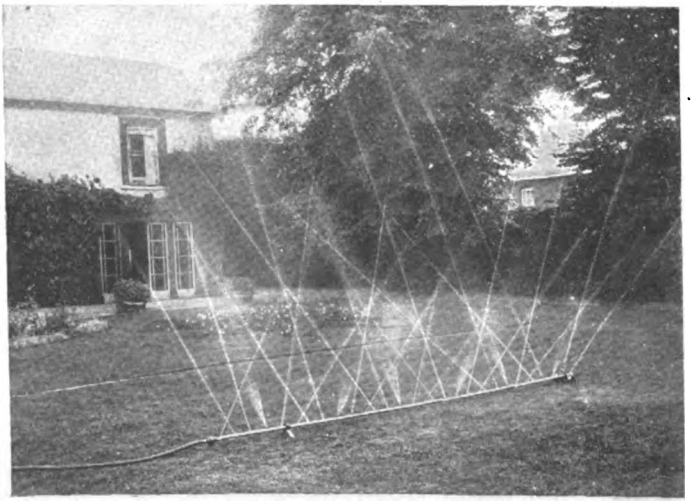
It must be clearly understood that one spraying alone is far from being likely to clear the roses of any pest. A suitable wash will kill the insects it touches, but some few are always missed, and there is the unborn generation to consider, so that the spraying should be repeated at short intervals. There are a few rules to be considered. Spraying should not be practised on sunny days or in the evenings of cold days. The first would be likely to result in scorched foliage and the second may cause a chill which would be very harmful to the roses.

Except for large areas, the spraying syringe such as is made by the leading firms is the best implement to apply the fluid with. The ordinary garden syringe, though admirable for its proper use, is unsuitable for applying an insecticide, as it is difficult to spray the undersides of the leaves and to obtain sufficient pressure to get a fine spray. It is always worth while to strain the wash before using it to make sure that it will pass through the sprayer without choking the jets. Where large areas have to be dealt with, a good knapsack sprayer such as the Mysto, Four Oaks or Stonehouse is admirable and easy to use.

With regard to fungoid diseases which attack roses, the present writer, being perhaps old-fashioned in some things, holds to the opinion that in many cases they are due to improper cultivation, and that where the roses are grown well fungoid diseases are mostly unknown. Mildew is an exception, and in many ways the rose grower is, with this, the victim of circumstances. As is well known, certain varieties are more liable to attacks of mildew than others, and in gardens which suffer from mildew it is always wise to grow only the more resistant varieties. As a preventive, "Kuremil" is excellent, or liver of sulphur dissolved at the rate of 1 oz. to 5 gallons of water, especially if a tablespoonful of liquid glue is added to make the spray adhere. A. C. B.

MECHANICAL AIDS TO IRRIGATION

THERE can be no doubt that one of the most important factors to be considered by the successful cultivator of practically all crops is the problem of providing a plentiful and sufficient supply of water during prolonged periods of hot and dry weather. While it must be admitted that, here in England, one seldom has cause to complain of extended droughts, it is, nevertheless, equally true that the growing seasons are few and far between when the rainfall and sunshine alternate in a sufficiently well balanced manner to render the lengthy and arduous task of artificial watering unnecessary. A few days of hot sunshine during the summer months cause the top spit of soil to become parched and dry very quickly, to the detriment of most seedlings and plants of a shallow rooted nature. Often such a state of affairs will result in serious damage to flower beds or lawns which have been the subject of much careful and tedious work in the past; while in the kitchen garden considerable delay will be caused before the crops reach maturity. The task of tending each individual



THE "WATERASQUARE" LAWN SPRINKLER IN ACTION.

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bed or plant by means of a watering can is—in all but very small gardens—a laborious one, often taking up a great deal of time which could be profitably employed elsewhere, while the use of an

THE "GIANT" RAIN KING, WITH FOUR JETS AND MOUNTED ON A STAND.

ordinary plain hose-pipe cannot be regarded as a great deal more satisfactory. More often than not, the ground is saturated here and there in patches, and, unless great care is taken, the operator usually succeeds in getting more or less soaked himself.

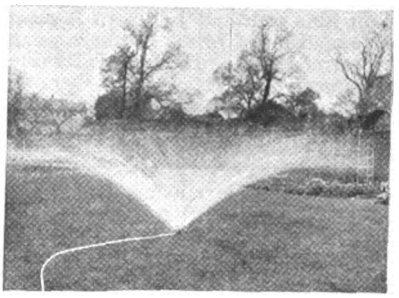
During recent years this problem has received a great deal of consideration from skilled engineers, with the result that it is now possible to obtain a great number of ingenious mechanical contrivances capable of distributing moisture over the ground in such an even and gentle manner that it closely approximates the actual fall of steady rain. The majority of these appliances can be obtained at moderate charges, and can usually be depended upon to give good service with an absolute minimum of labour involved. In most cases, it is only necessary to connect a hose-pipe to the instrument, turn on the water supply, and leave the rest to the machine. The initial cost is, of course, governed by the size and nature of the apparatus desired, and one can obtain small portable machines for dealing with lawns or gardens sectionally, or invest in a complete irrigation system which may be easily controlled by the manipulation of a valve.

For those who wish for a small but efficient machine at a very reasonable figure, either the "En Tout Cas" Pocket Sprinkler or the "2-Purpose" Rain King Sprinkler can be obtained. The former, which weighs only 1¾lb., will successfully cover with a fine mist-like spray a circle of 40ft. diameter, and the latter, while capable of covering the same area, has the twofold advantage of being readily convertible into a hose nozzle, in which case it can be quickly adjusted from a long, heavy spray with a range up to 55ft., to the finest mist. At the moment of writing, I have just received particulars of a similar machine of Canadian manufacture, known as the "Water Gun." It serves the combined purposes of a hose nozzle and lawn sprinkler, and appears to be a very serviceable little tool. It is fitted with a pointed spike which can be stuck into the ground at any desired angle, thus enabling it to be used for beds or borders of unusual shape, or for getting into obscure corners. By the simple turning of a small handle the supply can be regulated from a fine mist to a heavy stream, and quite apart from its use in the garden, it will be of great assistance in washing down outside windows, greenhouses, stone floors, etc. For those who wish to cover larger areas at one operation, an excellent choice remains, and the following brief descriptions of some of the better known makes will, perhaps, be of assistance in making a selection. The "En Tout Cas" Rotary Sprinkler is a very ingenious machine weighing only 7¼lb. As its name implies, it propels a jet of fine or coarse spray in a circular direction up to 80ft. in diameter. By a simple adjustment it can be made to oscillate backwards and forwards over a half-circle only, of the same diameter. It can be used in a variety of ways for watering lawns, flower beds or vegetables, and the water pressure required is only 12lb.

The "Stewart Rain King" is a very effective type of sprinkler which is so simple and sturdy in design that a child can manipulate it. It will cover an area of 70ft. on a pressure of 20lb. (which is about the usual house pressure) and can be instantly adjusted for either stationary or revolving operations. It weighs only 2¼lb., stands 5½ins. high, and has a base measuring only 6ins. by 5¾ins. A giant pattern of the same machine can also be obtained mounted on a standard and fitted with four revolving jets, instead of two as in the foregoing type. Each of these jets can be arranged to spray in different directions at once, and it is capable of covering a circle 90ft. in diameter. The "Pluviette" Standard is undoubtedly one of the

THE "EN TOUT CAS" ROTARY SPRINKLER ON A PERMANENT MOUNTING FOR SPRAYING BUSH FRUIT.

finest lawn sprinklers ever made. Working on a turbine principle, it will distribute a rain-like spray over an area between 300 and 400 sq. yds. from one centre. It is well adjusted for



THE "STEWART" RAIN KING AT WORK ON A LAWN.

varying water pressures, and is easily regulated to throw a fine, medium or coarse spray.

A more recent innovation of a slightly different nature has just been put on the market by that progressive firm, Messrs. British Overhead Irrigation, Limited. It is known as the "Waterasquare," and consists of a movable section of specially prepared pipe in 15ft. lengths. It is fitted at intervals of a few inches with nozzles set at different angles. Each length will, on an ordinary pressure of water, completely cover an area of 750 sq. ft. The total weight of the apparatus is only 42lb., and for convenience of shifting from place to place a small trolley is fixed at one end and the whole fitting can be pushed along in the same way as one wheels a barrow.

It is certainly one of the most effective methods for watering lawns and, in addition, is specially suitable for all kinds of sports grounds, such as bowling and golf greens, croquet lawns, etc., where a close and fresh green turf is desirable.

No article on irrigation would be complete without some reference to the great amount of experimental work which has been carried out by this firm, and it says much for the success of their endeavours when one finds their complete overhead systems being fitted on such eminent nurseries as Messrs. Carter's of Raynes Park, and Messrs. Sutton and Sons of Reading. The system has also been adopted by the London County Council on many of their public tennis grounds; while the number of market growers who have installations are far too numerous to mention. At their extensive demonstration grounds at Shepperton can be seen a site of 14 acres devoted to market produce. By means of the system fitted it is possible to spray every part of this ground with a supply of 20,000 gallons of water per hour, at the trifling cost of less than 2s.

Watering systems suitable for greenhouses, conservatories, lawns, gardens and orchards can also be inspected here, and any reader visiting these works can be assured of seeing demonstrations of a very practical and interesting nature.

A. J. C.

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THE AMATEUR SHOW

OPINION will probably be divided on this, the first Amateur Show, held under the auspices of the Royal Horticultural Society, at Vincent Square Hall on June 30th and July 1st. A comprehensive schedule of prizes had been arranged and it seemed that entries were fairly numerous in most of the classes; but there was a half-hearted atmosphere hanging over the Show, and for this the Society itself must, in part, be blamed. It would have been quite an easy matter to have re-arranged a number of the non-competitive exhibits so as to have filled the vacant spaces on the staging, and it should have been someone's duty to see that these collections, which were such an important feature of the Show, bore cards giving the names and addresses of the exhibitors.

Among the cut flowers competition was keen, especially in the case of sweet peas. Roses were not nearly so plentiful as might have been expected, even allowing for the drought, but the collections of general hardy shrubs were particularly interesting.

As we have suggested, the collections which were not for competition were admirable. Mr. W. B. Cranfield, East Lodge, Enfield Chase, deservedly received a gold medal for his collection of hardy ferns, which certainly could not be surpassed, even if it could be equalled. He filled the entire end of the Hall with well grown plants of a great many valuable and interesting varieties of scolopendrium (the hart's tongue fern), Athyrium Filix-fœmina (the lady fern), Polystichum angulare (the shield fern), Osmunda regale (the Royal fern), and many others.

Another unique collection was that of cotyledons, so attractively arranged by Mr. Reginald Cory, Duffryn, Cardiff. These ranged from species with large fleshy leaves to the smaller little clusters of almost sedum-like appearance. Sir Jeremiah Colman sent an admirable collection of his famous orchids from Gatton Park, as also did Mr. H. T. Pitt, Rosslyn, Stamford Hill. Hybrid liliums of great interest and such species as LL. giganteum, pardalinum, croceum, regale, Hansonii and umbellatum were displayed by Mr. R. O. Backhouse, Sutton Court, Hereford. A showy collection of Lychnis Haageana was there incognito.

A delightfully arranged collection of hardy flowering shrubs, sent by Colonel Messel, Nymans, Haywards Heath, included several varieties of leptospermum, cistus and escallonias, Indigofera Gerardiana and Philageria Veitchii, an interesting hybrid between Lapageria rosea and Philesia buxifolia. Mr. Lionel de Rothschild had a supplementary group of well grown shrubs similar to those in his first prize collection.

A large floor group, by Major Pam, Wormley Bury, Broxbourne, was arranged in the form of three water lily pools, surrounded by various sedges and grasses, bamboos, spiræas and Japanese irises, and this received much well deserved admiration.

COMPETITIVE CLASSES.

Roses were given the first place in the schedule, but it must be confessed that the blooms were generally somewhat disappointing. Although there were two classes for them, there was only one rather poor exhibit in the three vase class. The chief exhibits of tea and hybrid tea varieties were much better. The Rev. F. R. Burnside, a well known rosarian, won two first prizes with admirable blooms. His six vases included W. R. Smith, of lovely colouring, Dean Hole, Mélanie Soupert, White Maman Cochet and Mrs. Foley Hobbs, and his vases of hybrid perpetuals, Coronation, Louise Crette and Hugh Dickson were also of best quality. Another noted amateur rosarian, Mr. H. L. Wettern, Oxted Place, Oxted, was first in the class for twelve tea or hybrid tea varieties, and he included quite good examples of Avoca, Mrs. Wemyss Quin, Lady Inchiquin, George Dickson and La Champagne. Mr. G. A. Hammond, Silvercroft, Burgess Hill, who was second, had brilliant blooms of J. G. Glassford, Sunstar and Frances Gaunt, while in the third prize set of Mr. T. Evans, Reading, there was an enviable vase of Golden Emblem.

The general effect of the many spikes of delphiniums was good, though it would have been an improvement had more space been allowed. To the disappointment of some visitors, the two leading exhibits, which were put up by Mr. H. K. Farnell, The Elms, Acton Hill, and Mr. F. C. Stoop, West Hall, Byfleet, were composed of seedlings, but they were decidedly the best in the Show and were very attractive. Mr. E. H. Blakesley, Fairlawn, Redhill Common, had decidedly the best in the class of six vases, and he included Mrs. W. Wells, King of the Delphiniums and Lady Hammick. Mrs. G. M. Lewis, Sawyer, Brentwood, who won the second prize, showed two pretty vases of Madonna seedlings.

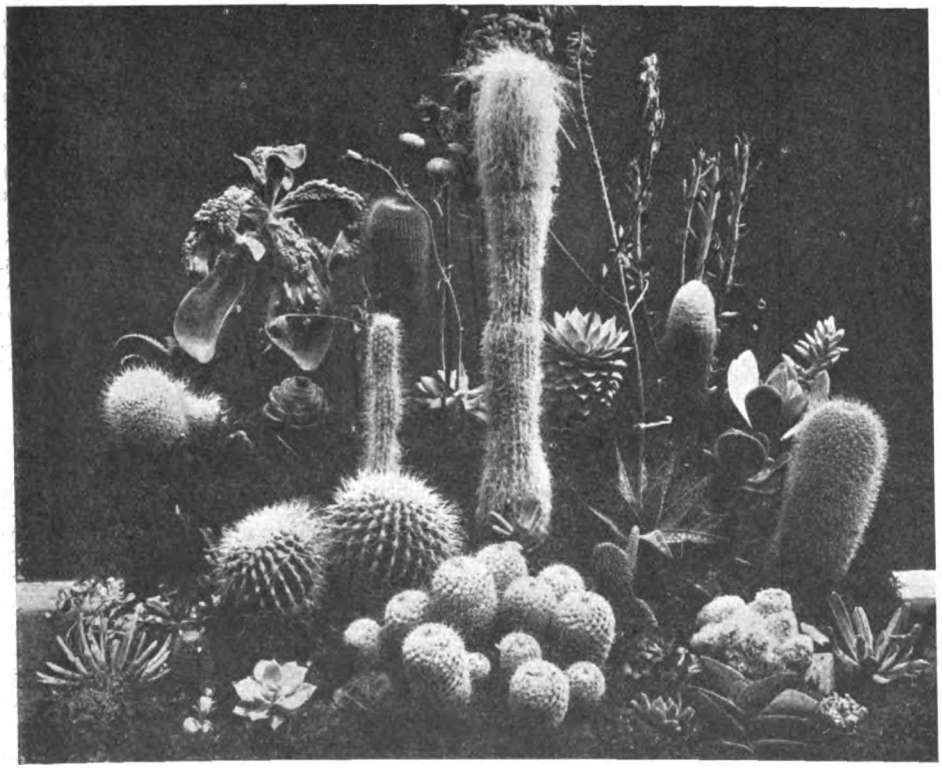
Sweet peas were certainly the most attractive flowers in the Show, and in excellent condition considering the trying season. The chief prize was awarded to Mr. R. W. Whitehead, Hillside, Reading, who had charming vases of Charity, Jean Ireland, Warrior, Orchid, Sunset and other good varieties. Mr. F. Churchward, Daccombe, Newton Abbot, was a good second, and he included glowing vases of Royal Sovereign and Tangerine Improved, two excellent orange coloured varieties, Mrs. Arnold Hitchcock and Wild Rose. Mrs. Hobart Tyler, Merton Court, Reading, had rather smaller blooms, but they were noteworthy for their intense colours.

Captain George Young, The Old House, Swallowfield, Berks, was first with six vases of very good sweet peas, which included W. J. Unwin, Grenadier, Warrior and Majestic, and Lieutenant-Colonel H. L. Scott, Hawthorn Lodge, Bracknell, was a close second. The best three vases were staged by Captain R. A. Barney, Faversham, who had lovely spikes of Charming, Powerscourt and Royal Scot. It was really too early for gladioli, but Mr. J. Fairlie, Acton, showed White Giant, Snow Wreath and Alice Kennedy very well and won the first prize.

Herbaceous flowers were of ordinary quality. Mr. Lionel de Rothschild, Exbury, Hants, was first and his most noteworthy vase was of Rhazya orientalis, an uncommon evergreen, introduced from Greece in 1889. It may be described as being an erect, narrow-leaved periwinkle, bearing plenty of small bright blue flowers, which it continues to produce for quite three months. In an unplaced collection there was a vase of Allium giganteum of striking appearance.

Carnations were well shown by Mr. R. Morton, Woodside Park, who was first with Linkman, Sam Weller, Mary Murray, Elaine and other good sorts, and in addition gained a first with three vases of border pinks. Mr. J. Fairlie was first with Border Yellow, Pasquin and Mrs. Hawksbee carnations. Violas were well shown by Mr. A. E. German, Hornchurch.

The new plant class was not very interesting. Mr. Lionel de Rothschild, won the gold medal with a large vase of Buddleia alternifolia, a Chinese species which was illustrated on November 8th last and which received an award of merit on June 27th, 1922. The long, slender sprays of fragrant, soft mauve flowers are very effective. The silver-gilt flora medal was won by Mr. F. C. Stern, with Indigofera amblyantha, a pretty rose coloured little shrub which unfortunately, droops when cut. The remaining exhibits were dormant rhododendrons.



THE ATTRACTIVE GROUP OF CACTI STAGED BY MR. REGINALD CORY.

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FLOWERING SHRUBS.

Had the space been allotted more generously, the exhibits of flowering shrubs would have gained considerably in attraction. They were mostly of the "Riviera" type, which thrive best in the warmer parts of the country. Mr. Lionel de Rothschild, in his first prize collection showed a good dark form of Buddleia Colvilei, B. alternifolia, Leptospermum Boscawenii, Helichrysum rosmarinifolium, Zenobia pulverulenta and similar species. Lieutenant-Colonel Stephenson Clarke, Borde Hill, Cuckfield, included very floriferous branches of Leptospermum Nairnii, Abelia floribunda, Benthamia capitata and Magnolia parviflora. Sir William Lawrence, Burford Lodge, had a lovely vase of Rosa Moyesii, with Solanum crispum and Ononis fruticosa; and Mr. Reginald Cory, included the glowing orange-scarlet Lonicera Scarlet Trumpet, while some shrubby veronicas were conspicuous in the collection from Mr. F. C. Stern, Highdown, Goring-on-Sea.

PLANTS IN POTS.

A tasteful group composed chiefly of Lilium longiflorum, highly coloured crotons, spiræas, hydrangeas and palms, won the first prize for Mr. A. P. Brandt, Bletchley Castle, and Mr. C. Langmer, Ardgowan, Swallowfield, who used Cocos Weddelliana, crotons, caladiums, crassulas and gloxinias as effectively, was second. Mr. Brandt was also first with twelve plants, among which he had splendidly grown examples of Pandanus Veitchii, Aralia elegantissima, and a well coloured dracæna. Sir William Lawrence had such uncommon plants as Russelia Lemoinei and Zephyranthes carinata, a delightful rose-coloured zephyr flower, and a begonia with gorgeous foliage.

An especially fascinating little group of cacti was shown by Mr. Reginald Cory. There were little plants of Cereus senilis, C. Spachianus, Crassula puncata, Gasteria Bayfieldii, Mamillaria Parksoni and M. senilis.

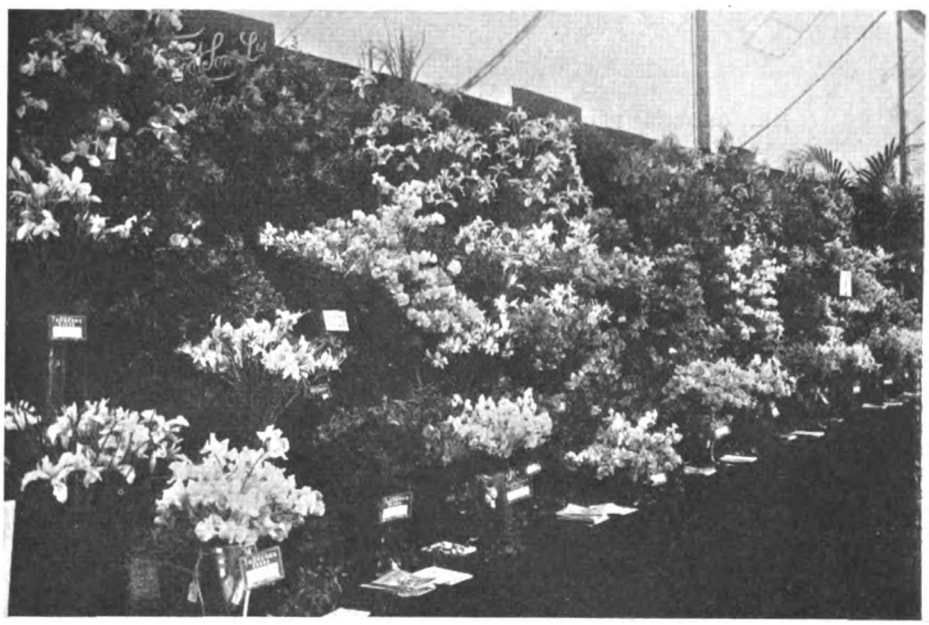
The orchids which won the first prize for Mr. H. T. Pitt, Rosslyn, Stamford Hill, included excellent miltonias, lælio-cattleyas and odontoglossums. Mr. A. Gentle, St. Albans, was second, and he showed Anguloa Clowesii, lycastes and lælio-cattleyas. In the class for six orchids, Mr. A. J. Sutton, was first with similar sorts.

Unfortunately, the remaining classes do not call for extended comment.

Gloxinias, mimulus, "any one genus of hardy plant," or British plants, were not represented, while the fuchsias and begonias were very ordinary. An exception was the six ferns in pots, where Mr. C. Henwood, Maida Vale, was first with charming specimens of Asplenium trichomanes trogyense, Blechnum spicant coronans, Polystichum angulare nitescens and other good examples.

BOURNEMOUTH FLORAL FÊTE

IN ideal surroundings and in glorious summer weather, a lavish display of flowers was provided for the public in the beautiful Meyrick Park on Tuesday and Wednesday, June 30th and July 1st. There was ample room on perfectly level ground for a big show of this kind, and the pine and heather clad hilly parts on the eastern boundary afford visitors a grand view of all open-air events. On the lower western side the large clumps of rhododendrons, pines and other kinds of trees cast a welcome shade of which the crowds of visitors took full advantage.



MESSRS. TOOGOOD S FINE EXHIBIT OF SWEET PEAS, GLADIOLI AND IRISES.

ROSES.

For a display of roses arranged for effect on a space 15ft. by 4ft., Mr. George Prince, Oxford, won the silver challenge cup presented by Mr. Walter Child Clark, and also the Bournemouth Corporation Cup, value 50 guineas, for the best exhibit in the competitive classes. Allan Chandler, a new pillar variety; Shot Silk, sweetly scented; Agéle Pernet, Mrs. Henry Morse, Mabel Morse, Mrs. Henry Bowles, Hadley, Queen Alexandra, Betty Uprichard, Sadie (a sport from Lady Pirrie) and William Cordes were prominent varieties. The exhibit was in the form of pillars with a groundwork of blooms in vases.

Mr. Elisha J. Hicks. Hurst, Twyford, Berkshire, was placed second, with a lovely collection in the form of pillars with a central arch and groundwork vases of blooms, including Queen Alexandra, Lady Hillingdon, Betty Uprichard, Chas. E. Shea and Mrs. Stevens, all in perfect condition. Mr. Arthur Radmore, Bournemouth, won third prize. In the class for twelve roses, distinct, on boards, Mr. George Prince won first honours. All were good, Edith Haig and Lady Barham being outstanding sorts. Messrs. F. Cant and Co., were second with blooms of Princess Victoria and Augustus Hartman. Mr. George Prince scored in the classes for five pink and five red, respectively; and Mr. Hicks in the class for five white. In another division, Mrs. A. Cook, Bournemouth, won first prizes for twelve roses, distinct, and also for six; Mr. H. Nixon was second.

SWEET PEAS.

Mr. A. E. Usher, gardener to Sir Randolf Baker, Bt., Ranston Park, Blandford, won the silver challenge cup for the third time, with a really grand lot of blooms tastefully displayed on a space 12ft. by 4ft. Grenadier, Wild Rose, Pink Perfection, R. F. Felton, Wembley, Mammoth and Purple Perfection were outstanding where all were good.

Mr. J. Stevenson staged a really magnificent lot of sweet peas; this collection was remarkable for the richness of the colours, these being deep, clear and very pure. Guinea Gold, Golden Glory, Coraline, La France, Diana, Venus, Charming, Crimson Glow and Stevenson's Cream, a green and yellow mixture, were notable.

Messrs. Toogood and Sons, Southampton, had a beautiful group of sweet peas and irises. Of the former, Doris, Floradale Purple, Matchless, Powerscourt, Mrs. Tom Jones and Royal Scot; and of the latter, Nymph, Prince Albert, Princess Dagmar, Grand Lilas, Lucinia, Bridesmaid and General Vetter, were very fine. The local classes for sweet peas were also well filled with charming blooms, Miss Fortescue, New Milton, Hampshire, being a prominent prize-winner.

CARNATIONS.

As with the roses and sweet peas, so with the carnations, there was a wealth of them. Messrs. Allwood Brothers staged a very fine collection in baskets and in vases. The silver cup, offered for the best exhibit in the Show, was awarded to this collection. A few of the many good varieties staged were the following: Beauty of Durham, Edward Allwood, White Pearl, Topsy (a better sort than Triumph), Laddie, Jessie Allwood (fine yellow), Mrs. H. Stoop and Eldora.

Messrs. Stuart Low and Co. also had a fine display, notable varieties being Amos Grove, Lord Lambourne and White Pearl.

For two vases of carnations, distinct, Mrs. Wyndham Pain (gardener Mr. P. Kitcher) won first place with very fine blooms of great substance and rich in colour.

HERBACEOUS FLOWERS.

These and rock plants were well represented. Messrs. M. Prichard and Sons had a charming group arranged in a natural manner on a space 100ft. square. Scabiosa caucasica, Watsonia Ardernei, kniphofia, Lupinus Downer's Delight, delphiniums Prichard's hybrid strain, Iris Duchess of Abercorn, I. Sultan, I. Haknoden (white), I. Lady Grey were the best.

Messrs. Skelton and Kirby also staged these plants well, Delphiniums Danube, Nettie and Violet Gueslin, and Aconitum Newbury Gem being notable.

MISCELLANEOUS EXHIBITS.

Mr. Usher won the challenge cup for a display of fruit, flowers and vegetables on a table space 12ft. by 4ft., all the produce being high class. Messrs. T. F. Rivers,

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Sawbridgeworth, were represented, as usual, by healthy, well grown specimens of cherries, peaches, nectarines, plums, oranges and figs in full fruit in pots.

Messrs. Hilliers of Winchester had a charming exhibit of water lilies, bamboos, acers, gunneras and cistus; Cistus Silver Pink was conspicuous. Messrs. Stacey and Staddon were responsible for a rock and water garden, very natural and beautiful. Messrs. John Peed and Son, West Norwood, had a very imposing group of caladiums, crotons and gloxinias. Messrs. Leonards, Bournemouth, a unique exhibit of floral devices, cut flowers and choice fruits. Messrs. Jarman and Co., Chard, centaureas, irises, roses, gladioli, delphiniums and violas. Mr. T. K. Ingram, Parkstone, Dorset, floral devices. Mr. G. G. Collyer, Lymington, Hants, rock and herbaceous plants, Primula capitata, Campanula G. F. Wilson and Delphinium Loddon Guard. Messrs. Maxwell and Beale filled a large space with choice alpine and rock plants which were well arranged.

MR. GEORGE PRINCE'S EXCELLENT EXHIBIT OF ROSES.

Groups of shrubs and small specimens of conifers in pots were typical of the Evergreen Valley, as Bournemouth is called. Some of these choice shrubs and trees were exhibited by Messrs. Jeans and Trowbridge, who also won the silver challenge cup for a group of miscellaneous plants and cut flowers, arranged in a space of 200 sq. ft.—20ft. by 10ft. Graceful palms, a new zonal pelargonium—Mrs. Burt—coreopsis, blue hydrangeas, gaillardias, Canterbury bells and perennial asters were the principal plants and flowers in this group.

Gold Medals.—Messrs. Jarman and Co.; Messrs. Toogood and Sons (large gold); Mr. J. Stevenson; Mr. T. K. Ingram; Messrs. Allwood Brothers; Messrs. Stuart Low and Co.; Messrs. M. Prichard and Sons; Messrs. Leonards; Messrs. John Peed and Son; Messrs. Stacey and Staddon; Messrs. G. Watts and Sons; Messrs. Hillier; Messrs. T. Rivers and Son; Mr. Arthur Radmore; and Mr. W. E. Yandell.

Silver Medals.—Messrs. John Scott and Co.; Messrs. H. Haskins and Sons; Messrs. Skelton and Kirby; Mr. H. M. Elford; Messrs. Maxwell and Beale; Messrs. Jeans and Trowbridge; and Mr. G. G. Collyer.

CORRESPONDENCE

THE COLLECTION OF ALPINES.

SIR,—To visit during the summer months, in full flowering time, a strange mountain country, rich in plants one is anxious to acquire, is a very tantalising experience for an enthusiastic gardener. During a recent motor tour through the Cantabrian Alps and across the plains of Northern Spain, I saw many plants that I would have dearly loved to cultivate, but my efforts to transfer these to England met with very little success. If any of your readers can give me any "tips" that might be useful for my future guidance, I would be deeply grateful. It is all very well to say that the best way to introduce "alpines" is by means of seed, or to gather them in the autumn and pack them with dry roots! But how many of us can recognise the plants we want at this season? And, moreover, how seldom do we visit these mountainous districts during the autumn months?

From the small success I achieved, I feel convinced that it ought to be possible to devise some kind of zinc collecting box that would greatly facilitate the safe transport of "alpines," provided sufficient care had been exercised in the first instance in lifting them from the ground. Perhaps such a box already exists; if so, I would be very glad to learn from whom it may be purchased. I should imagine this box ought to be made of zinc or tin, and be at least 2ft. 6ins. long, 9ins. broad, and about 1ft. 6ins. in depth. The sides and lid, of course, would have to be freely perforated with holes to permit ample ventilation. With two trays divided into divisions of suitable size (also perforated), such a case should enable one to carry a fair number of plants (removed with a ball of earth), under airy, moist conditions; and if the divisions were lined with Fibrex or some similar substance, they could be removed at the end of the journey without any further root disturbance.

This box is, as yet, only a child of my fancy and before putting it to a test, I would like the opinion of others who have tried (I hope more successfully than myself), to lift and transplant "alpines" when in their full floral beauty.—COLLINGWOOD INGRAM.

VIBURNUM BITCHIUENSE.

SIR,—I was in the garden at Hayne, Moreton Hampstead, one day last month, and was struck by what seemed a giant bush of Viburnum Carlesii in the distance, in full bloom. When nearer, I discovered that, though the flowers and very pinky buds were very like those of V. Carlesii, the leaves were different and the flowers had no scent. I was told that it must have been planted many years ago, long before V. Carlesii was introduced. Another large shrub in full bloom, new to me, grew near it, with small, greenish-yellow, sweet-scented flowers. I sent bits of both off at once to Mr. E. A. Bowles and asked for the names, which he sent (in great hurry) as Viburnum Bitchiuense and Eleagnus multiflora, saying "the latter has pretty red fruit."—(Mrs.) LLOYD EDWARDS.

HABIT OF VIOLAS.

SIR,—I was sorry to see on the stands of some of the viola specialists at the recent Chelsea Show so large a proportion of the purely exhibition type of the flower. So many of these exhibition sorts are of little use as border or bedding plants, owing to their straggling habit of growth. They lack the tufted character which makes certain varieties so charming even before they come into bloom.

Visitors viewing an exhibit of violas at a show such as Chelsea make a selection as their fancy dictates, often regardless as to whether the varieties selected are useful for bedding and effect in the garden, for which purposes the average person requires these plants. Enquiries as to habit and reference to catalogue are apt to be overlooked when a particular variety is fancied. If a variety of poor habit is purchased, disappointment probably results, and the purchaser is likely to conclude that violas will not do well in his garden.

It behoves raisers of new varieties of violas to be careful in their quest for new and distinct sorts that the tufted habit and free-flowering propensity are not sacrificed on the altar of size. Having regard to the habit of many of the more recently introduced varieties, it seems evident that such a state of things may occur, and it seems to me that, in some cases at least, raisers are working on the wrong lines. Even those new varieties that are not actually straggling in habit are far too rampant in their growth. I have grown most of the named varieties that have been in commerce during the last twenty years and more, and for bedding purposes and freedom of flowering many of the older sorts are, for garden embellishment at any rate, still to be preferred to a great many of the newer sorts. It is only fair to say, however, that there have been sent out within recent years a certain number of most excellent varieties, distinct "breaks" in colour and of a good habit of growth.—H. C.

A WELL SET UP EXHIBIT.

SIR,—For some years I have been unable to attend shows, and am, therefore, the more dependent on what I see described and illustrated in the garden papers. I have always thought that in flower exhibits, and independently of the actual merit of the blooms, much depends on good arrangement. In your issue for May 23rd, among the notices of flowers at the Chelsea Show, there is an illustration of Messrs. Toogood's Spanish irises. The notice merely says that they are "well arranged," but these words do but scant justice to the quite admirable setting up of the exhibit, which certainly deserved special praise. The large central upstanding mass is perfectly balanced by the grouping of the blooms below, which swing up on either side in a way that is a model of good feeling for balance and proportion; while the back spaces on each side are just rightly filled by the slender upstanding chamærops.—G. JEKYLL.

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NOTES FROM CONTRIBUTORS

THE DOUBLE DAISIES.

AMONG the flowers that have been very welcome this spring, particularly after the long drawn out winter, are the various forms of Bellis perennis.

The garden varieties of this daisy have been improved considerably during the past decade or so, and they can now be obtained in many tones of red and pink. They are all very hardy, will grow anywhere and are easily propagated by division.

Colonies of these plants interspersed among the low-growing subjects at the edge of the borders made my garden very gay for some weeks in spring. Although we are accustomed to look upon these daisies as commonplace little plants, they are well worth growing in considerable numbers to provide attractive masses of colour at a time when most needed.

Some very pleasing named varieties are Ball of Fire, a big flower, deep rich crimson in colour; Dresden China, a small flower of a delicate shade of rose pink—a charming little variety; Shirley, a recently introduced variety, the individual flowers of which are rather striking in appearance—it is a semi-double sort with dark crimson ray petals of considerable substance.—HOWARD H. CRANE.

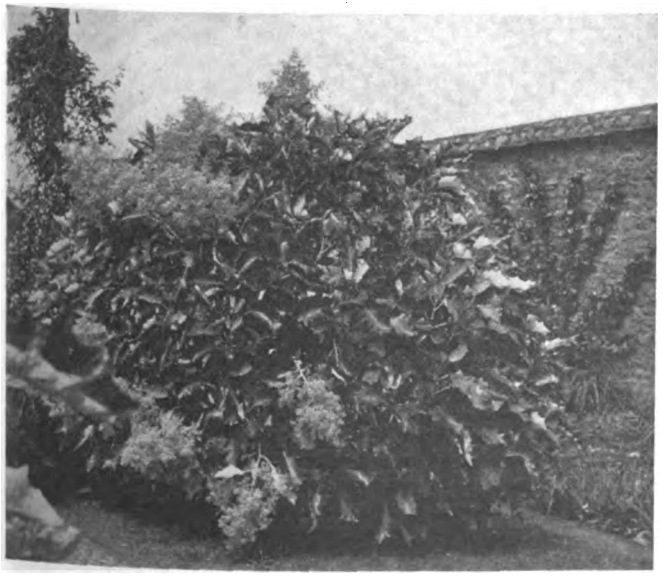
DAY LILIES.

WE can shut our eyes to the fugitive character of the day lilies—hemerocallises—when we recollect the output of their blossoms, and the comparatively little trouble the plants give once they have become established. They are never better served than when located near the margin of a stream, and are among the ideal plants for waterside gardening, loving moisture and, when catered for in this way, growing into beautiful clumps very soon. But it is not as waterside plants alone that they are useful, as one recognises their worth in the hardy plant border, and here they give a good account of themselves, if mulched with old manure from time to time. In July they are, with us, in full beauty, and have seldom failed through long years. H. flava, bright yellow; fulva, coppery red; aurantica major, orange yellow; and disticha fl. pl., semi-double orange crimson; are among the best known of these old-time garden flowers.—W. LINDERS LEA.

BRACHYGLOTTIS REPANDA.

I ENCLOSE a photograph of Brachyglottis repanda growing in this garden (West Porlock House, Somerset), which may interest the many readers of THE GARDEN. The measurements are about: Height, 6ft. 6ins.; circumference, 28ft. It was grown from a cutting struck five years ago.

It would be interesting to know if anyone has had like successful results with this composite.—G. W. W. BLATHWAYT.



A FINE BUSH OF BRACHYGLOTTIS REPANDA.

A HYBRID HEUCHERA.

THE enclosed is, I venture to think, rather a charming photograph of Heuchera Tiarelloides, the hybrid between a heuchera and Tiarella cordifolia, which seems to partake of the nature of both parents. I trust it may interest many readers of THE GARDEN.—R. HUDSON

HEUCHERA TIARELLOIDES, WHICH BEARS SOME RESEMBLANCE TO BOTH ITS PARENTS.

THE PURPLE CONE FLOWER.

FEW gardens of hardy flowers include among their treasures Echinacea purpurea, the purple cone-flower, a distinct and attractive as well as effective border plant, which would be a great acquisition to many places. It is far from being new to cultivation, but on account of a certain liability to succumb in very severe winters it has never been so popular as its attractions would justify. With regard to this remark about its being by no means a new plant, it may be pointed out that some confusion exists respecting the date of its introduction. In one work in my possession it is said to have been introduced in 1699, but in some others, generally considered reliable, it is stated as 1799. Seeing that it was figured or described in the *Botanical Magazine*, t. 2, published in March, 1786, and that reference is made there to what Miller said regarding its liability to succumb, it seems likely that the earlier date, given as 1699, is correct, although the *Botanical Magazine* gives no date itself. This point is probably of little importance to the gardener, but it would show how long this fine plant has been known in British gardens. It is frequently called Rudbeckia purpurea, but Britton and Brown refer to it, in the "Flora of the Northern United States and Canada," as Brauneria purpurea. Happily, the name of purple cone-flower is well established, although another is also applied to it in the United States, where it sometimes passes under the name of "Black Sampson," which is far from describing the flower's coloration.

The flower itself is a truly handsome one, with a distinct central cone and long, narrow petals of a good purple. It is faithfully represented as regards colour in the old plate of the *Botanical Magazine*, which tells us that the "outermost petals *x x* are long, purple and pendulous, and not unaptly resemble small pieces of red tape." It grows about three feet high and blooms from July to September, and in its best forms may well be accounted one of the most striking border plants of the season. It seldom ripens seeds with us still, but seeds produce plants which vary considerably in colour, breadth, and length of the ray florets. Good forms ought to be propagated by very careful division in spring, as later division is almost certain to be fatal to the plant. Some of the good forms are sold under varietal names and one of the best known to the writer is that called the "Taplow variety," crimson-purple, for which we have been indebted to Messrs Barr and Sons. The cultivation of E. purpurea is not difficult in ordinary garden loam, but it ought to be well drained, and one's own experience over a long series of years has confirmed the statement made by the old authors that it is liable to be lost in winter and that a spare plant or two should be kept in a frame to replace the others should they be killed. It is unfortunate that we have no absolutely hardy form of E. purpurea, which comes from Carolina and Virginia.—S. ARNOTT.

PUSCHKINIA SCILLOIDES.

A VERY useful spring-flowering bulb that is usually seen in large establishments is Puschkinia scilloides, sometimes named P. libanotica. A native of Asia Minor it has been known in this country for rather more than a hundred years and now forms a regular feature in any recognised collection of bulbs. The flowers, of which a dozen or more are borne on a spike, in a like manner to hyacinths, are of a very light blue and in some cases white colour with blue stripes. These marks or stripes are dark blue at the base, gradually shading off to a very light tone at the edges of the petals.

The flower spike attains a height of 6ins. or 7ins. and the flowering period with us is from the middle of March to the end of April.

The bulbs, which should be planted about 3ins. deep during the month of October are best left undisturbed for a period of three or four years, when they may be lifted, the young ones taken off and the whole of them allotted a fresh position. To get the best results the bulbs should be given a sunny position where the soil is light rather than heavy.—W. H., *Glasgow*

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SIMPLE GARDENING

TOMATOES: TREATMENT OF SUMMER AND LATE AUTUMN CROPS.

A FEW years ago, when we experienced a very hot, dry summer, it was not much trouble to grow fine crops of tomatoes, even in the open air. Nearly all the fruits that set, ripened or were easily ripened after they were gathered. But we must not rely upon a similar warm autumn this year. The hot summer above referred to will be remembered as one favourable to the white fly, too. With reference to this pest I would urge amateurs, especially those who are growing tomatoes for the first time, to make good use of the remedies as supplied by advertisers in THE GARDEN. The tiny grubs are hatching out every day, and the remedies should be applied at least twice a week for a month or so till all flies are destroyed. When the plants have set several trusses of fruits, it frequently happens that the top trusses of flowers fail to set. This condition is caused by lack of strength of plant and frequently, too, through overdryness of the soil. While in full growth tomato plants require plenty of water, also top-dressings of rich lumpy turves and manure. Retain the leaves near the base in a healthy state as long as possible. It may be that a late autumn crop is desired. I always put out during July a batch of plants with this object in view, and select for them a nice sunny position near the glass. The plants may be finally planted in the border in large pots or boxes. When three trusses of fruits have set, remove the others, as the three will be burden enough for each plant.

PINKS AND CARNATIONS.

The pink is hardier than the carnation, it flowers early in the summer, forms dense masses in borders and is effective as an edging to a border. When the flowers have faded the silvery foliage is beautiful and retains this beauty and compact habit all through the year. The fragrance of the pink is rarely excelled by any other flower grown as a border plant. Divide the old plants or insert cuttings—pipings—to increase the stock. The present is a suitable time for the insertion of cuttings. Before any are taken from the parent plants see to the preparation of the border for their reception. This border should be in the open air, on the north side of a wall, low or of medium height; a narrow border in preference to one very wide. Dig the soil deeply and, if available, add some old potting soil to it, firm the ground and cover the surface with sand nearly 1in. deep, gritty, not fine and floury. As the cuttings are taken place them direct in a pail of water. The basal shoots are the best. Remove the three lower leaves, cut off square below a joint and insert at once, 2 ins. apart in rows, water through a fine-rosed watering-can, shade or, better still, cover temporarily with a garden frame. Border carnations should be layered as the basal shoots become available. First clear away all faded leaves and any weeds. Use as a compost, loam two-thirds, leaf-soil and sand one-third. Pack this compost close under the old plant. With a sharp knife cut, slant-wise, half through the stem. Bury the latter in the new soil and peg it firmly there. The chief after-attention is watering.

SOME CHRYSANTHEMUM PESTS.

Cultivators of these plants who wish to have in due course exhibition blooms will now anxiously watch the shoots that are to bear the flowers. There are several kinds of pests that destroy leaves and tender shoots. The leaf-mining grub is very troublesome this year. Watch the plants closely and directly any white specks and streaks

are observed in the leaves press the specks—which are grubs of the leaf-miner fly—between the thumb and finger. The letter *a* shows the sound leaf and *b*, *b*, *b*, grubs. Syringe the ashes round the pots with a paraffin emulsion and the foliage with clear, weak soot water every week to make the surroundings unpleasant for the fly. Green and black aphides infest the shoots as seen at *c*. Use tobacco powder in the evening and syringe it off early the following morning. While closely watching the plants note any suckers growing at the base, *d*, *d*, and remove them without injuring the roots of the plants. Do this till the middle of October. The cuckoo-spit or froth hopper is very prevalent this year, too. It surrounds itself with froth—the juices of the plant. The leaves, as shown at *g*, are deformed, and later on the shoots are eaten, shown at *e*, *e*, by the froth hopper or frog hopper, *f*, *f*. It is called the jumper, too. Destroy the larvæ now and, later, the jumpers by hand. These jumpers have broad heads and resemble frogs. If readers see little various-coloured, crocodile-like insects or grubs similar to the one shown at *h* on the shoots, retain them. They are the larva of the ladybird, a friendly insect which destroys aphides.

VEGETABLE MARROWS AND CUCUMBERS

I am now referring to vegetable marrows and cucumbers in the open air and also to cucumbers in cold frames. It is not always easy to succeed with these plants, and very difficult indeed in the case of marrows where the plants are growing on heaps of littery manure. There are two extremes to avoid, namely, the high, dry bed and the one under the spreading branches of large trees. In both cases there will be yellow embryo fruits and loss of crops. Where the plants are growing on the high, dry beds, improve the conditions by liberally top-dressing with good rich loam mixed with rotted manure. Where the plants are in much shade, train the shoots very thinly, stop the laterals one joint beyond the one bearing marrows and fertilise the young fruits daily. Cucumbers in open beds require very similar treatment, but the plants under glass must be watched closely, taking care that all tiny, useless shoots and fading leaves are regularly removed and strong side shoots bearing young fruits as regularly stopped to prevent undue crowding. Twice every day the plants should be well syringed, thoroughly wetting the under part of each leaf, or else the whole plant will be ruined by red spider in one week without hope of recovery.

EARLY CABBAGES AND ONIONS IN NORTHERN COUNTIES.

Where both kinds of vegetables are concerned, it is advisable to make two sowings of seeds, one about July 20th and the other about August 5th, in northern counties. Generally a small sowing in each case will be sufficient, and the resultant plants will be of more value than those from one big sowing made either early or late. In the meantime we must prepare the ground for these crops as long as possible beforehand. A very rich soil is not suitable, nor is a very poor one. The latter should be enriched with rotted manure if such is available. Of course, the border in which the seeds are sown will be a small one, and it should be in the open quarter, not sheltered by trees or buildings. Here, too, the soil should be deeply dug and well prepared, old lime rubble being mixed with it. The onions may be sown in the permanent bed—the one in which the bulbs are to mature—the surplus plants being drawn carefully and replanted early in October. The cabbages, too, should be planted in their permanent quarters between the middle of September and the same time in October, when the ground is in good condition.

GEORGE GARNER.

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THE GARDEN

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A HANDSOME AND STATELY BORDER OF PALLIDA IRISES EDGED WITH NEPETA. THE CONTRASTING TONES OF BLUE ARE CONSIDERABLY ENHANCED BY THE BACKGROUND OF FESTOONS OF ROSES AND BY THE DARKER GREEN OF THE SURROUNDING SHRUBS AND TREES.

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IRISES FOR THE SMALL GARDEN

ALTHOUGH SPACE IN THE GARDEN MAY BE LIMITED, A CORNER SHOULD BE FOUND IN WHICH TO HOUSE A FEW REPRESENTATIVES OF THIS HANDSOME GENUS. IN FRONT OF SHRUBBERY PLANTINGS OR INCLUDED IN THE HERBACEOUS BORDER THEY LOOK MOST EFFECTIVE.

THE mentality that leads one to gardening is often fascinated by that widely diversified family of plants known as the irids. Into this Natural Order falls the iris, a genus that is represented, in one form or another, in, perhaps, as many gardens as any member of the floral world. But that representation is too often embodied in a few stray plants of the ill-named Iris germanica, which adds but a feeble quota of gaiety or colour to a garden, and that only for the briefest period in early summer.

BEARDED IRISES ALONG THE PATHSIDE.

IN SEMI-NATURAL GROUPS BEARDED IRISES ARE ALWAYS EFFECTIVE.

This is not an article for those deeply schooled in the iris as a genus; such folks would tell you how you may cull iris flowers right through the winter and early spring from the time of stylosa and histrioides till Delavayi closes the calendar in September or October. The purpose of these notes is rather to give a few common-sense hints on the culture of the tall bearded irises, which have become so popular during the last few years, and whose range of colouring has so widened under the care of the hybridist that these plants now form one of the most honoured and valuable occupants of our modern flower borders. One's interest in the iris grows with experience. A first planting of, perhaps, common and well known varieties fixes the attention on what are undoubtedly very beautiful flowers. Ambition soon begins to crave, and seductive catalogues are scanned, or selections made at the shows with a view to adding some choicer sorts at the next planting season. Insidiously and almost unconsciously a new hobby has been added to the joys of the garden, and a very pleasing and much valued one it becomes. But if one is bent on pursuing this hobby to its furthest possibilities, he is likely to have little reason for thinking of the iris as "the poor man's orchid." Six or seven guineas is not an uncommon price for a root of a new or recently introduced variety, and, while these are extreme and fancy prices, many of the newest additions to this iris group are undoubtedly of very high rank, and without excellence would never survive a false standard of price for more than one season.

The average grower will, of course, pay scant heed to those new things rejoicing in such highly polished prices, the more blithely as he knows there is wide enough choice at moderate, and even modest cost.

The bearded iris belongs to and is a typical example of that race of garden plants termed "thrifty." That is to say, it is easy to grow and is easily propagated. It would pay, therefore, to start a collection by obtaining even one plant each of, say, a dozen varieties, and from these increasing the stock as one's requirements or available space dictates.

Now, it is not an easy matter to give advice on the selection of a small number of sorts where a couple of hundred make insistent call for inclusion. Here, however, is a "baker's dozen" of standard well tried sorts, varied in colour, cheap in price, containing both tall and dwarf growers, all of good constitution and easy of increase, a very fitting collection for a small garden wherewith to whet the appetite for further adventures.

ALCAZAR.—This is a French variety raised about fifteen years ago, still in the front rank, finely upstanding in growth and flower-spike, and richly coloured. Standards blue violet with a faint suspicion of bronze, falls deep violet purple with distinct bronze veining at the haft.

ARCHEVEQUE.—Same origin as Alcazar and about the same time. A dwarf grower, extremely rich in colour. Standards violet purple of velvety texture; falls deep purple, flowers large and handsome.

AZURE.—A "Bliss" seedling introduced in 1918. Of all the many blue-toned irises, this is easily my first favourite among the cheaper sorts, the contrast between the standards and falls forming a perfect balance and giving in the mass a rich and telling effect. Standards lavender blue; falls deep violet blue.

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CAMELOT (Bliss, 1918). —Tall-growing plant and the flowers are an excellent foil to the prevailing iris colours. Standards and falls are creamy white, delicately edged pale violet.

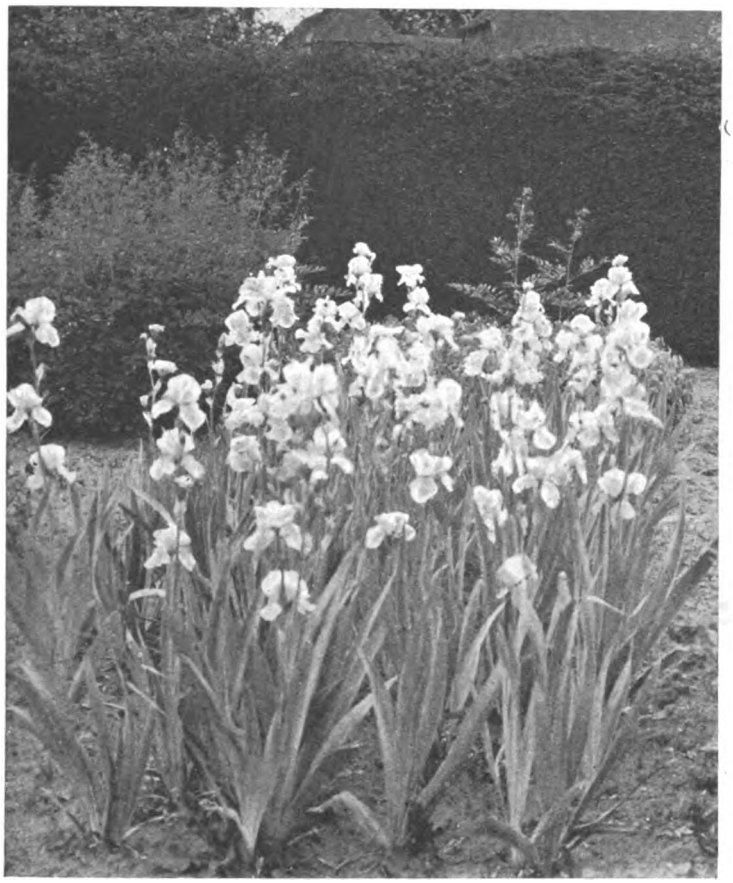
ELDORADO. — Another French introduction very attractive in its combination of colours. The standards are yellowish bronze with shading of heliotrope; falls bright purple with bronze yellow showing at the edges.

FRO.—A German iris, very free flowering and beautiful, medium height. The standards are bright golden yellow and the falls purple crimson slightly edged yellow.

LADY FOSTER.—Raised by Sir Michel Foster and introduced in 1913. Still one of the finest, the flowers being very large and of stout texture. The standards are pale violet blue, the falls darker in tone with a veining of old gold.

LORD OF JUNE.—One of Mr. Yeld's splendid introductions and has been in commerce some fourteen years. I think this is the most sweetly scented of all the irises, and its tall, commanding appearance and fine colour will ensure its selection in all gardens for a long time yet. Standards soft lavender blue; falls rich violet.

MARGARET MOOR (Bliss, 1918).—Standards and falls of this variety are both lilac red, the latter being deeper in tone. A valuable variant from the dominant blue tones.



THE STATELY IRIS PALLIDA DALMATICA.

PALLIDA DALMATICA (Princess Beatrice). — This wonderful iris has been in cultivation since the sixteenth century, and is still highly valued in the best collections. The foliage is vigorous, broad and glaucous, and the flowers stand high on strong upright stems. Both standards and falls are of beautiful pale lavender blue.

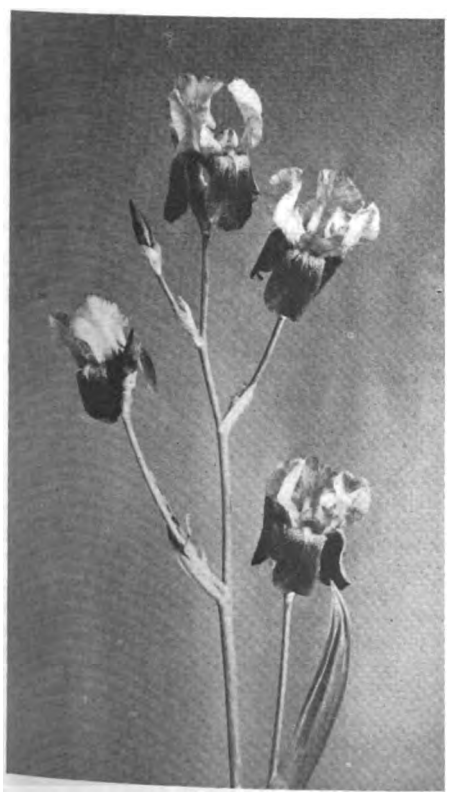
PROSPER LAUGIER. — A French improvement on the old Jacquesiana. Very floriferous and quickly forms bold clumps. The standards are a combination of brown heliotrope and bronze, and the falls deep violet crimson. A striking flower.

QUAKER LADY. — An American product very quaint and dainty in its tender colour scheme. Standards are smoky lavender suffused with yellow; falls similar, but deeper, with some violet flushing.

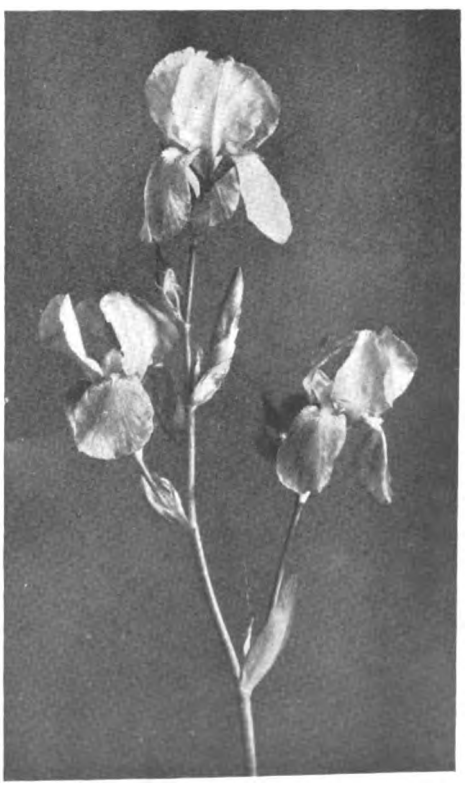
RODNEY. — Introduced in 1919 by Mr. Bliss, this is as near to a true self blue as we have. A tall branching stem throws the flowers well up, and these are of beautiful form as well as colour. A most desirable sort.

The culture of the bearded irises is simple, but frequently misunderstood. In conversation with garden-loving folk it is astonishing how often one is asked if these plants can be grown without the presence of a pond or stream. Evidently the conviction has got firmly embedded in the public mind that continual moisture is essential to their well-being. So far is this wrong that the Iris germanica race is one of the best drought resisters in our gardens. The plants are never in better condition than after a thoroughly dry period following the flowering season, and I can never remember seeing the foliage showing signs of distress for want of moisture. Even young seedlings three months old from germination will flourish happily in light soil during a long, hot, dry spell such as we have had this summer, and that without aid from artificial watering.

Nature's demand, then, is for a well drained soil, but it seems to matter little what the composition of that soil is. I have seen irises growing very contentedly in all sorts of mediums, from the lightest sandy loam to heavy clay. If there is any deficiency of lime in the soil, an annual dressing should be given and, if possible, a liberal quantity of crushed mortar rubble should be dug into heavy soils when beds are being prepared. The choice of a sunny aspect is another consideration making for their



THE GIANT ALCAZAR.



LADY FOSTER, A GOOD GARDEN VARIETY.

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successful culture. Although irises will live and make an appearance of fairly healthy growth in shady or overhung quarters, they will only do really well in a position where they have free access to all the sunshine this island of "depressions" can get. Shallow planting must be adopted so that the upper part of the rhizome is quite exposed to sun and air.

The question of when to plant is an affair of extensive discussion. Some very successful growers declare September and October to be the best time, but my own experience, resulting from transplantations over the whole period from July to Christmas, tells me that the best results of all come from August operations, followed closely by those of early September, the latter being conspicuously better than those of late September and October. Yet I have received rhizomes, packed quite dry in a cardboard box, from the middle States of America just before Christmas, and they bloomed beautifully early in the June following. August and early September are, however, the periods I should choose had I full command of my time for planting at will. J. L. GIBSON.

IRIS SIBIRICA AND ITS ALLIES

BY W. R. DYKES.

MOST gardeners have heard of Iris sibirica even if they do not grow it, but comparatively few realise that it is only one of a number of species that form together a separate section of the genus. All come from Europe or Asia, with the single exception of the American I. prismatica, which is very distinct, but which seems, at any rate, more closely allied to the members of the sibirica group than to those of any other section of the genus.

All the members of the sibirica section like a cool, moist soil containing plenty of humus, and some will succeed where the roots penetrate below the water level in the soil, though they are also capable of doing well in a herbaceous border provided that the surface is mulched and manured. In my experience, divided plants never do so well as those which are put out as seedlings into their flowering positions and left undisturbed. There is, of course, the difficulty that seedlings of the different varieties do not come absolutely true from seeds, while even among seedlings of the species there is a certain amount of variation. When plants must be moved, or when it is desired to propagate by division a particular form or variety, the operation is best carried out either in early April when growth is just beginning or in September when the soil is usually moist and comparatively warm. If plants are moved in April, great care must be taken to keep the ground round them moist until they are completely re-established.

THE TALL AND HANDSOME IRIS SIBIRICA IN CONGENIAL SURROUNDINGS.

It is characteristic of the various members of the sibirica group that they form a more or less compact mass of slender rhizomes, from which grow a large number of roots, a great contrast to the somewhat sparse root fibres of the bearded irises. All the species except the Himalaya I. Clarkei and the American I. prismatica have more or less hollow stems, though in the case of some, such as I. chrysographes, the central cavity is nearly filled with pith.

I. sibirica itself seems to owe its name to a confusion with I. orientalis, because it appears to be a European species, and it is doubtful whether the true plant is found east of the Urals. It grows wild near the upper part of the Rhine, in Switzerland, Hungary and central Russia. The relatively small blue flowers stand high above the foliage on tall, slender stems, which are nearly twice as long as the leaves. I. orientalis has large flowers on shorter stems, which only raise them above the foliage, because the tips of the leaves bend over and droop. Of both species there are albino forms, that of I. orientalis being the well known Snow Queen, which is a purer white than that of the various varieties of I. sibirica, for the latter are more or less tinged or flushed with faint lilac or blue. Some forms of I. orientalis have their spathe valves heavily flushed with red purple, which has earned for them the name of sanguinea, though these red spathes are by no means a constant character.

Hybridisation between these two species produces interesting results, for the deep blue of the wild flowers can be diluted to a sky blue by crossing with the white, and the large flowers of orientalis can be obtained on the tall stems of sibirica.

Both I. sibirica and I. orientalis have their flowers heavily veined and flushed with deep blue purple on a white ground, which can, however, be changed to yellow by crossing them with I. Wilsonii, a yellow-flowered species from western China. The latter is not a very striking plant, for the yellow is pale in the somewhat twisted standards, and often dotted and flecked with purple on the falls.

I. Forrestii is another species from western China of more slender growth and narrow grassy foliage, but with flowers usually of a far clearer yellow and of more pleasing shape.

The most richly coloured species of the whole group is I. chrysographes, which earned its name, when I first saw it in flower, from the fact that its deep velvety purple falls are veined or streaked with gold over their central area. It comes from western China, where there appear to be several other closely related species or local forms. It is unfortunate that the various explorers, who since the beginning of the century have visited the great storehouse of good plants in western China, seem all to have been more interested in rhododendrons and other flowering shrubs than in anything so lowly as an iris. Consequently, we do not know as much as we might about this group of irises, and can only suspect that there are several good things yet to come into our gardens.

I. Bulleyana was first described as a wild species from the same region, but the variation among its seedlings casts some doubt on its claim to specific rank. It grows about 2ft. high, with somewhat narrow leaves and has flowers veined and blotched with blue on a white ground.

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One of the tallest of all irises, and one that is valuable for its habit of flowering late in June, is I. Delavayi with long, drooping falls, on the central area of which appear large white blotches amid the surrounding purple. The first introduction of this species brought a form with dark red purple flowers, but later on some seeds, which were, I believe, collected by Mr. E. H. Wilson, gave me a whole series of colour forms, ranging through blue, as well as red, purple. A very pretty hybrid can be made by crossing I. Delavayi with I. Forresti or I. Wilsoni, for then the white ground of the falls becomes yellow.

The Himalayan I. Clarkei, from the neighbourhood of Darjeeling and the Chumbi Valley, is distinguished by the polished upper surface of its foliage and by its solid and not hollow stem. There is also extraordinary variation among the flowers, both in the shade of purple colour and in the markings and blotches on the falls. The stem also branches low down and often more than once, so that this species is abundantly distinct from the others in the group.

I. prismatica, from the north-eastern United States, has flowers like those of a small I. sibirica on wiry stems, which are characteristically bent and not stiffly erect as in the case of I. sibirica itself. The growth is much less compact than that of the European and Asiatic species, and the tufts of leaves appear at some distance from each other. To do well I. prismatica needs a moist, cool position.

All these irises are easily raised from seeds, and should be sown in the autumn in pots, which are best sunk to the rim in a bed of sand or ashes in an open position. The young seedlings should appear early in the year, and the pots may then be given the protection of a cold frame. By the end of May or early in June they should be big enough to be planted out in their permanent positions, where they should begin to flower in the following year.

AN EFFECTIVE GROUP OF IRIS DALMATICA AND LUPINS.

IRISES AND LUPINS

TO make a brave show in the herbaceous border during the first three weeks of June there is nothing more effective than a bold grouping of lupins and irises. The choice of variety is important, but even more so is the manner of planting, for the mistake so often made of planting nothing but the dwarfer plants in the forward positions must be avoided if beauty and not conformity is the first consideration, so many otherwise beautiful borders being spoiled by this, and having a flat and uniform appearance.

An occasional iris or lupin, for instance, among dwarfer plants when on the very margin of the border, or even growing so as to project over a flagged walk, breaks the outline and, standing apart, gives one the same sense of pleasure as the stray self-sown flower in path or wall.

In middle and backward positions tree lupins and polyphyllus can be grown intermingled, the differences in stature adding greatly to the charm of each, and the former making very bold growth where the soil is at all suitable. Neither plant is at all exacting in this respect, and lupins have become greater and greater favourites during the last few years, their delightful fragrance and the decorative effect of their habit of growth, as well as the development of a wonderful range of colours, having combined to increase their popularity.

Perhaps the most beautiful of the flag irises to grow with lupins is that shown in the illustration—Iris dalmatica—having several advantages for the purpose over other varieties and, being later in flowering than many of the group, it is at its best at the same time as the lupins. It is a most beautiful clear pale blue with slightly darker "falls," being much more striking than pallida or Florentina, two paler varieties somewhat resembling it. All three have glaucous foliage, but Iris dalmatica has a much bolder flag, and the flower-stem is proportionately much taller, many of those in the illustration measuring 3ft. 8ins. To add still further to its height and to make it free-flowering it is a good plan to plant the groups on small mounds in the border, for preference with a stone or rubble foundation and a couple of feet in diameter. This, while adding to the height, also ensures good drainage and has a very marked effect on the flowering.

CREEPING PLANTS IN THE GARDEN

BY DR. R. LLOYD PRAEGER.

FROM the point of view of a contributor, one advantage of an editor (of course, I mean one of *many* advantages) is that he sometimes suggests a subject for an article which the contributor himself would not have hit upon. A contingent disadvantage is that the contributor may not be quite sure what the editor is driving at. "Creeping Plants in the Garden" is capable of various interpretations, according to the taste and fancy of the interpreter. It might herald a procession headed by stonecrop or Solomon's seal or even Virginian creeper. When in doubt, it is well to begin with a definition; that clears the air and gives one a hint as to what one is talking (or writing) about. A creeping plant, according to Daydon Jackson's "Glossary of Botanic Terms," is one whose stem runs along or under the ground and roots at intervals. This excludes on the one hand plants which merely lie upon the ground (trailers) and, on the other, the so-called "creepers" of our walls and arbours. It includes all things that root as they run.

Creeping plants are plants with creeping stems, and to get at the inwardness of creeping stems, their variety and their vagaries, we must spend a few moments in considering the question of stems in general. The majority of stems, annual or perennial, show a more or less well marked alternation of nodes and internodes. The nodes are the points at which leaves are produced. They are often swollen; in hollow stems they are usually accompanied by a transverse partition; and they are the points at which branches and additional roots usually originate, or are capable of originating. The internodes are the spaces between the nodes. They are usually uniform throughout their length, and incapable of giving rise to branches or roots. The arrangement of the leaves on the stem, and also the distance between them (*i.e.*, the length of

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the internodes) vary greatly in different plants, and it is this that to a great extent gives variety and character to their appearance.

While in plants with upright stems roots are seldom produced from the nodes (save when we plant portions of stem as cuttings), in creeping plants the production of nodal roots is characteristic. One effect of this is very important. A plant with upright stems has to rely upon its original root-system for all root purposes, that is, for the absorption of water and its dissolved salts, and for the safe anchoring of the plant; and no matter how much the stem elongates, these roots and the whole length of the stem are constantly in use, sending up materials to the growing parts. But in creeping plants the nodal roots short-circuit these arrangements. As the stem lengthens new roots are forming continually; the original roots and the older parts of the stem are not required, and die away, and there is no theoretical reason why a creeping stem should not go on creeping from Land's End to John o' Groat's, or why such a travelling plant should not continue creeping for a thousand years. When one looks at a field of bracken, one may reflect that the whole sea of greenery may have arisen from a single spore. Given only time enough, one scrap of couch-grass may fill a whole garden. This readiness to root at the nodes makes creeping plants very easy of propagation, since every node is a potential new plant. As we know to our cost, it makes weeds with creeping stems the most dangerous of all weeds, especially if these stems be underground, as in couch-grass, bracken and bindweed, for every buried scrap which is left behind in digging is capable of starting the trouble all over again.

CAMPANULA PUSILLA, ONE OF THE MOST CHARMING OF CREEPING PLANTS.

One or two other considerations relating to creeping stems have a practical application in gardening, and deserve mention. For instance, stems of this kind have not to maintain the weight of the plant as upright stems have, nor are they exposed to wind; therefore instead of becoming thick and stiff, they generally remain thin and soft. The roots, again, are somewhat ephemeral, since the plant keeps moving forward steadily; in consequence, though many, the roots are generally short. Perhaps it is for this reason that creeping stems are so characteristic of plants of wet places—the roots may not be long enough to penetrate to the damp lower layers of soil in places which are dry.

We may now proceed to review the various types of creeping plants as exemplified in our gardens, and consider how their peculiar modes of growth fit or unfit them for use in horticulture. To see creeping plants at their creepiest, we may take the "carpeters" of the rock garden—cotulas and acænas, the small New Zealand epilobiums, thymes, raoulias, Lippia nodiflora, etc. These have stems which lie close to but above the ground, producing small leaves singly or in pairs, and from the same points frequent tufts of fibrous roots. Two dainty tiny members of the same group are Arenaria balearica and Mentha Requienii. The usefulness of these carpeters in covering areas of soil or of path, or even damp stones, is well known, and needs no comment. In these plants there is only the one kind of stem, which creeps on indefinitely, bearing branches and flowers. Another common type is illustrated by the strawberry, sitfast, Geum reptans, several potentillas, etc. Here a short, erect stem produces slender prostrate shoots, consisting of a very long internode at the extremity of which a similar erect shoot and a tuft of roots are produced, also an extension of the prostrate shoot, which thus goes looping along till the close of the season, when the long internodes die away, leaving a number of rooted young plants sitting round the parent. A third type is exemplified by the common bramble, Lithospermum purpureo-cœruleum and the bugle, Ajuga reptans. In these the arching stems are leafy, and in autumn they take root at the tip to form new crowns in the following season. The crowns so formed may persist for many years, giving out similar shoots annually, as in the bramble; or they may flower and die in the ensuing season, as in the bugle. But the precise plan on which the plants work is very varied, and need not be followed here. Any gardener can study it for himself, and he will find it interesting and suggestive. The ultimate effect is that such plants tend to form a tangled mass of interlacing stems, spreading rather fast; their use and the dangers of their use in the garden are evident from this.

So far, the creeping plants which have been mentioned have stems which run *above* the ground, but many of the most characteristic of the creepers have underground stems. In some these stems prefer to be half-buried, and plough along with their backs showing above the soil. The great Saxifraga peltata does this conspicuously, and many irises. The blood-root (sanguinaria) and wood anemone show the same tendency. In all these the stems are very succulent, and are used to store up food. Their creeping, branching habit tends to the production of large patches. Many other familiar creepers prefer to keep their stems out of harm's way, 1in. or 2ins. down in the soil. Here belongs, indeed, the main mass of the creeping plants of the garden—woodruff and lily of the valley, Campanula pusilla and Calceolaria polyrrhiza, epimedium and maianthemum, helianthus and thermopsis—all kinds of plants, large and small, some spreading a foot per year and some an inch.

Where creeping stems are more deeply buried and cannot conveniently send each leaf up through the soil into the air, we often find a division of labour coming in. The main stem frequently has its leaves reduced to mere colourless scales, but along with similar underground branches it produces branches which grow up into the air and bear green leaves and flowers. This is what *appears* to happen in many grasses and sedges, but actually in these the subterranean stem soon grows up into the air, sending out a side shoot below which continues the underground stem, and in turn grows upwards. It comes to the same thing as regards result. In the creeping grasses and sedges the scale leaves, which are really ordinary leaves transmogrified, are often very hard and flinty, and at the

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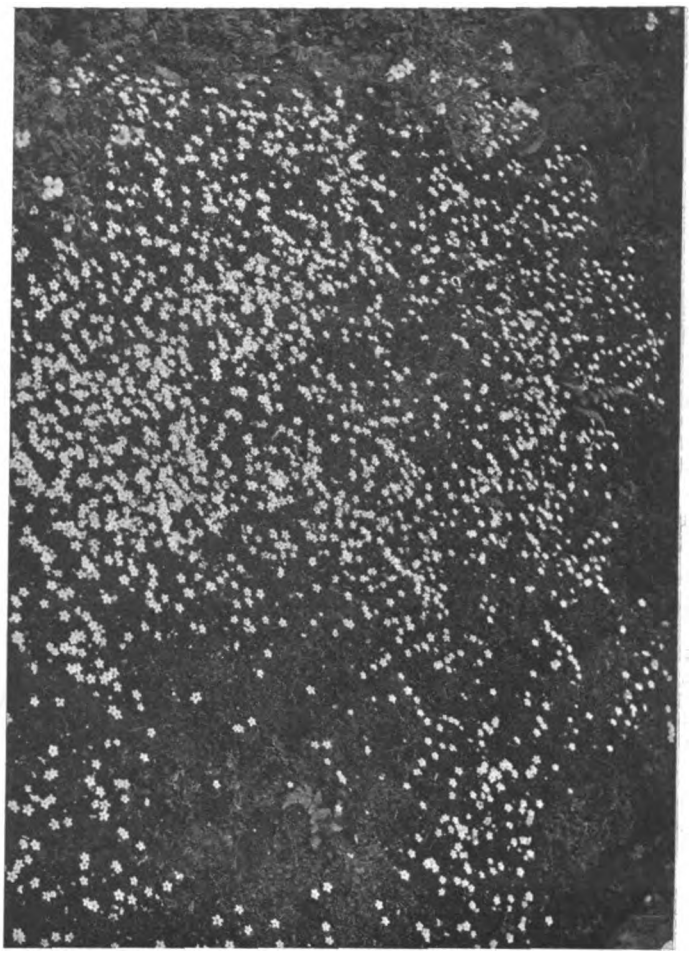
tip of the stem form so firm and sharp a point that one can prick one's finger on it. The usefulness of such a spear for forcing a way through hard ground can be imagined. In many plants the aerial and subterranean shoots, in pursuance of their respective functions, have become so unlike each other in appearance that if we saw them apart we could not guess that they belonged to the same plant. The bindweed and field thistle are familiar examples. In these the annual stems which bear leaves and flowers are highly developed and characteristic, while the perennial part consists of soft, colourless, formless, root-like growths, helpless-looking and ugly, but possessed of a fiendish vitality and power of penetration which places them in the forefront of enterprising and ineradicable weeds.

In some plants the scale leaves of the underground creeping stems are very conspicuous and peculiar. In the coralwort, for instance, of which one species, Dentaria bulbifera, is an English wild flower, the white, brittle underground stems are covered with tooth-like, white, fleshy scales, while the aerial portion consists of a smooth 2ft. stem bearing green, pinnate leaves and purple blossoms, and in the axils of the leaves curious shiny black bulbils, rough and scaly. These, if planted, grow at once into white scaly underground stems. The toothwort, another native plant, has stems still more scaly, and the scales are so curious in their structure that they were long believed to be insect traps, like the bladders of utricularia. From these scaly stems roots proceed which fasten upon the roots of trees and draw nourishment therefrom, for the plant is a parasite. The above-ground growth consists of cream-coloured leafless scaly spikes of succulent drooping flowers.

Creeping plants are not a race apart, but merge by degrees through the trailers into the main army of upright plants.



SOME CREEPING PLANTS, SUCH AS ARENARIA BALEARICA, ARE ESPECIALLY SUITED FOR CLOTHING SHADY WALLS.

THYMUS SERPYLLIFOLIUM IN A CHOICE SITUATION CASCADING OVER ROCKY STEPS

In species of very many different groups the stem has a tendency to develop roots when it is in contact with moist soil, just as roots often tend to produce shoots under the stimulus of light and air. These last are true *suckers*, which in the correct sense do not arise from underground stems, but from ordinary roots. Some trees produce them habitually, like the white poplar, and, in the garden, cherries and plums. The tendency of stems to root is much more widespread. Where it occurs in plants which do not creep we call it layering, and it is one of the most important means of increasing shrubs which do not strike easily as cuttings. Layering is, in a sense, forcing plants to creep which do not do so naturally.

The creeping habit is especially developed in plants of lakes, ponds and wet places, and it is this that makes the water garden so difficult a problem. Bulrushes (scirpus), reedmace (typha), sweet flag (acorus), arrowhead (sagittaria), pondweeds (potamogeton) and their fragrant cousin aponogeton, water lilies, all have stems which creep through the mud, many of them vigorously. Safely protected by the water, we cannot keep them in check, and in a few years hopeless confusion is the result. The marsh garden is just as bad, for marsh plants also generally creep. Look at the tangle in our own marshes of yellow loosestrife, water mint, gipsywort, skullcap, sedges and twenty others. How can we keep the water garden in order, then? Nohow, except by sticking to the comparatively few plants which do not creep, or only slowly. But by eliminating the vigorous ones, like typha, scirpus and that scourge the water horsetail, and re-making at intervals, order may be maintained to some extent.

Then there are creeping shrubs, some of which are as bad as the water plants for introducing confusion where one wishes order to reign. The well known snowberry, Symphoricarpus racemosus, is perhaps the worst offender in this respect. Some of the coriarias, too, need to be introduced with caution, as they run about underground and keep popping up where they are not wanted, and there are many others.

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To sum up this rambling dissertation, a few facts emerge which are useful points for the gardener. Creeping plants in general have short roots, and need to creep in order to reach fresh food supplies. We cannot, therefore, confine them rigidly to a small area without periodical replanting and feeding. Generally speaking, they are suited to moist rather than to dry places. Those that creep below ground need constant watching if there are prized plants in their vicinity. Where they cannot conveniently be kept in check, as in water or among stones, they should not be introduced at all unless the intention is to let them run riot. A little fine top-dressing seldom comes amiss. In the case of rock plants it should be sandy, that it may easily work down through the tangle of leaves and stems.

DISEASES AND PESTS OF VEGETABLES.

GOOD cultivation does not consist solely of soil treatment, sowing, planting, feeding, training, etc.; it includes successful battles against disease and insect pests, which are always quick to attack weakly specimens and bring low the strongest, if they themselves are not killed or turned aside in time.

The following are some of the most dangerous diseases and pests of particular vegetables that the cultivator must guard against:

ASPARAGUS.

Probably many cultivators have observed bare places in their asparagus beds when the young "grass" is, or should be, growing freely. In many instances, the beetles and larvæ are feeding on the tender tips just under the soil, and examination should take place by removing soil. I have seen plants almost denuded of their young, feathery foliage in summer by the larvæ of the beetle. The soil should be freely covered with soot in the autumn, and in spring all beetles found on the bed should be killed; they are darker in colour than the ladybird. A soft-soap and paraffin mixture should be syringed on the foliage directly any larvæ are observed. Boil slowly 8 oz. of soft-soap for ten minutes in half a gallon of rain-water, and add 1 pint of paraffin afterwards. This will make 6 gallons of water for syringing forcibly on the foliage. The emulsion should be well stirred when being applied.

Asparagus rust is troublesome in some districts. If, in the summer, the plants turn brown, apply Bordeaux mixture in a fine spray, wetting all parts. The weather should be calm at the time of spraying.

BROAD BEANS.

Black aphides soon destroy the plants if they are not themselves destroyed directly they are found. They are dark brown, but are always referred to as black. When the plants approach the flowering stage, a constant watch should be the rule, and, on the appearance of the first aphis, remove the tip of the plant, as the pest starts at the top and multiplies downwards. The removed tops should be collected and burned. Little more trouble need be taken. The bean beetle is not often troublesome, as our seedsmen are careful in the preparation of the seeds. Furthermore, where seeds contain the beetle, the latter perish in them when the seeds swell in the soil. The same remarks apply to the seeds of peas.

RUNNER BEANS.

Thrips and red spider will, in some hot seasons, almost ruin the plants. The leaves of these plants are favourite homes of the red spider. The latter saps the strength-juices of the leaves, and, if left unchecked, reduces the latter to skeletons in a short time. Plants growing in a well trenched soil rarely suffer to the same extent as those in a poor, shallow one. The insects protect themselves by weaving webs, and light syringings leave them dry under the webs. The garden engine is better than the syringe,

but in each case the water should be directed to the undersides of the leaves. Use clear water only, and saturate the soil at the roots twice a week in dry weather, applying a good surface mulch after the first watering. Thrips often do much damage to runner beans, destroying the flowers as they open. The pests are sometimes conveyed to the new crop when old stakes are used again. But just before the flowers open syringe the plants with a soft-soap emulsion. Boil 1lb. of soft-soap in 1 gallon of rain-water and, afterwards, add 10 gallons of clear water. The soft-soap should boil gently for twenty minutes. The prepared liquid should be applied in a light spray, passing one way along the row and then return, treating both sides in a similar manner.

PEAS.

In dry weather, both thrips and mildew do a lot of harm to the foliage, and, should remedial measures be neglected, the crop of sound pods will be a small one. Vigorous syringing and judicious feeding with surface mulches will keep the growths clean and healthy. An attack of mildew may come where the plants are rooting in a constantly moist soil, or when they are, daily, artificially watered. Of course, we want the happy medium, and the conditions just referred to would result in a chill to plants and pods and conduce to a severe form of mildew.

Frequently, very fine pods are spoiled through the seeds in them being attacked by green and yellow grubs. When the flowers open, a moth lays her eggs in them, and, of course, they are enclosed in the pods, hatching as the seed swells to maturity. The only thing to do is to syringe the plants when the first flowers open, with a weak paraffin emulsion, or one made from quassia chips or extract, to render the foliage distasteful to the moth. The pea weevil eats the leaves, and sparrows are often blamed for this. Apply a light dusting of soot when the drills are open, and frequently after the young plants appear above the soil.

Mice sometimes destroy the seeds soon after they are sown. Procure some glass jam-jars about 7ins. deep, bury them at intervals of 7ft. apart, with the rims level with the soil. Three-parts fill them with clear water, and also smear some grease—mutton-fat for preference—inside the neck of each jar and just below the rims, approximately 1½ins. from the top of the jar; the mice, in trying to reach the fat, overbalance and fall into the water. As many as six are often so drowned in a single jar, and thus the quarter is cleared of mice in a short time. Rolling the seeds in red lead prior to sowing is a good old practice and often resorted to in these days.

As a guard against birds eating the pods and peas in them, nets are the best protection in the case of choice sorts required for special purposes.

POTATOES.

Perhaps, out of all the numerous drawbacks that the noble tuber is subject to, the potato disease (Phytophthora infestans) is the one most generally looked for and spoken of. In addition to the quality of the cultivation, we have such varying seasons as regards weather. Moist, dull weather, commonly called "close and trying," during the month of July, favours the spread of the disease. It would take up many pages to describe adequately, in detail, the whole life history

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of this one disease and its remedy, so I shall only deal with the main points. It seems to me that the plants are more subject to this blight when they are grown on the same ground year after year and from home-saved seed. Change, in both cases, is highly beneficial, certainly, of seed, after the second year. New varieties are, generally, stronger and more disease-resisting. The Bordeaux mixture is the best known remedy, but it should be applied at the end of June, before there are signs of the disease, and twice in July. The tubers, as well as the leaves, become diseased. On a misty, dull morning in mid July, one may smell the disease as one passes by a field of potatoes. The spores are liberated by currents of air, and, being light, float away, settle on sound leaves and so infect them. The spraying should be done to make it difficult for the spores to live at all, much less multiply, thus acting as a preventive or preservative of the entire crop. Good and careful earthing-up does much to prevent the disease reaching the lower stems and tubers. If, however, the haulm is diseased, it should be cut off and burnt forthwith, as its functions are, naturally, impaired. Leaf-curl in potatoes is on the increase, but it is a disease that can be controlled very considerably. The writer has had much experience of it in the south. Seed tubers, ripened in a light, hot soil, will frequently remain hard in the soil when planted, instead of decaying, and the curled appearance of the foliage should suggest to the cultivator the condition of the "set." There is no cure, but it may be prevented if seed tubers are obtained from Scotland, or lifted at home before they are really matured, greened and sprouted in light, cool quarters. Potato scab spoils the appearance of the tubers. The writer has frequently observed badly scabbed tubers lifted on land heavily manured with fresh farmyard manure just prior to the planting; if a light sprinkling of lime is applied before the tubers are buried with soil, scab is not as bad even when fresh manure is used. In light soils, and in all soils thoroughly broken and manured with rotted dung several weeks before planting, scab is not serious.

Black scab first appears round the eyes of the tubers and then spreads all over them. It is such a bad disease that crops affected should be destroyed.

Wireworms are mostly troublesome in newly broken grassland. The grubs are generally found in the top 3ins., near the roots of the grass, and if this portion be peeled off and dried, then heaped and charred, the wireworm will perish. Vaporite is also very good, especially if mixed with the charred turves as they are dug in, as the fumes must be confined.

Leather-jacket grubs, the larvæ of the crane fly, can be destroyed by using Carter's "Kil-Jac." GEORGE GARNER.

MORE ABOUT THE SUMMER ROSE SHOW

AMATEURS' ROSES.

THE principal classes in this section contained many excellent blooms, and the competition generally was very good. The Amateur Champion Trophy was won by Dr. R. C. Turnbull, Colchester, who staged thirty-six particularly good exhibition roses. His chief sorts were Colchester, Lord Allenby, Red Star, Candeur Lyonnaise and E. F. Hudson. While the second prize collection of Mr. J. W. Hart, Potters Bar, was not quite so even in quality, it included excellent specimens of Captain Kilbee Stewart, J. W. Hart, Coronation, Gladys Harkness and Candeur Lyonnaise. Mr. F. Dennison, Leamington Spa, was a good third in this important class.

The sets of twenty-four blooms were of even higher quality than in the former class, and the first prize collection also won the Mawley Cup. This exhibit was staged by Mr. F. H. Fieldgate, Colchester, whose best blooms were of Hugh Dickson, Candeur Lyonnaise, A. Hartmann, Mrs. John Laing and Mrs. F. Dennison. Dr. Turnbull was a worthy second in this fine class, and he staged superb blooms of Mabel Morse, Mrs. K. D. McClure, Nellie Parker and Modesty. Mr. F. Dennison was a good third.

The exhibits of twelve distinct blooms also reached a high standard of excellence, and here Mr. C. H. Rigg, St. Albans, was first with J. B. Clarke, J. J. Glassford, Edgar Burnett, J. L. Mock and other good sorts. The second prize was won by Mr. A. Johnson, Bishop's Stortford, with a collection that, under other conditions, might well have taken first place. His very best were Coronation, Colleen, Modesty and J. L. Mock.

In the class for growers of fewer than 500 plants, the first prize collection of twelve blooms was also awarded the Mawley Medal as being the most meritorious exhibit in the whole of the amateurs' classes. Mr. K. de V. Pryor, Hitchin, included magnificent blooms of Mrs. C. Lamplough, Dr. A. Petyt (a brilliant crimson rose), Martha Drew and Candeur Lyonnaise. In his very good second prize set Mr. W. J. Bambridge, Kettering, showed Mrs. J. H. Welch and H. V. Machin of great merit. Mr. G. O. Nicholson, Market Harborough, had the best six blooms in this division.

Dr. Panckridge was the most successful exhibitor in the division for growers of fewer than 250 plants, and his six distinct varieties were all excellent. Mr. W. T. Cohen, Berkhamsted, was second. The extra class, open to all amateurs, also induced a strong competition, and the first prize was won by Mr. J. E. Raze, who included Candeur Lyonnaise, Bessie Brown and Mrs. C. Lamplough in superb condition. There was also an interesting and keen competition in the class for members who had not previously won a prize, and the chief honour was won by Mr. T. C. Hodgkins, Walsall, who included fine blooms of Lemon Pillar and Lady Plymouth.

The class for growers residing within ten miles of Charing Cross apparently suffered from the great drought. But Mr. A. W. Rogers, East Putney, who also won the first prizes for growers within eight miles and within five miles of the same centre, staged creditable blooms, which included Mrs. G. Norwood, Mrs. Elisha Hicks, Florence Forrester and Mme. Louise Crette.

There were some exceedingly good blooms shown in the first prize exhibits of amateurs who grow their blooms without any paid assistance. Mr. W. J. Bambridge had Coronation, Mrs. J. H. Welch and George Dickson. Mr. W. Sunderland, Driffield, had a lovely bloom of Mrs. F. Dennison. Dr. Panckridge had Candeur Lyonnaise, Dean Hole, Mrs. J. Marriott and Mrs. C. Lamplough of great beauty. Mr. G. W. Nicholson showed Modesty and J. L. Mock. Mr. A. L. Brine, Hythe, and Mr. J. T. Owen also showed blooms of more than average merit.

The tea roses were particularly good, and the first prize twelve distinct blooms shown by Mr. F. Slaughter, Steyning, included delightful specimens of Lady Plymouth, Mme. Jules Gravereaux and W. R. Smith. Mr. W. E. Moore, who had the best six tea blooms, included White Maman Cochet, the silver-gilt medal bloom.

Dr. M. Lacroze, Roehampton, has many times won the first prize for a group of roses and, as always, he had a very charming arrangement. His varieties included Betty Hulton, Mrs. Henry Morse and Mrs. H. Stevens. Mrs. Burgess had the best smaller group, and she used excellent blooms of Lady Inchiquin, Los Angeles and Sunstar.

Mr. H. R. Darlington, Potter's Bar, added to his many triumphs in the class for twelve roses of distinct varieties, showing General McArthur, Betty Uprichard, Florence Mitton and other good sorts. Mrs. Henry Balfour was second. Mrs. L. A. Tilley was the most successful with six varieties, having excellent stems of Silver Moon, Lady Hillingdon and Cupid. Una and American Pillar were well shown by Mr. F. Slaughter.

The baskets of roses were all very charming. The best two in the chief class of exhibition roses were excellent blooms of Mrs. G. Marriott and H. V. Machin, shown by Mr. J. E. Rayer, Worcester; and Dr. Turnbull was second with Mrs. G. Marriott and T. F. Crozier. Candeur Lyonnaise, shown by Mr. S. W. Burgess was first in Class 31, and mixed varieties shown by Mr. R. A. Smith, Hertford, was first in Class 34; while Dean Hole and Frau Karl Druschki won the first prize for Mr. E. T. Gann in Class 36. Avoca, shown by Mr. C. C. Williamson, was the best basket of twenty-four stems of a decorative rose. Mrs. Henry Morse, shown by Mr. W. T. Cohen, was the best twelve stems.

NURSERYMEN'S CLASSES.

The many baskets of cut roses in this section made a most delightful display. The best seven baskets were shown by Mr. H. Mattock, who included Mabel Morse, Louise Crette, Golden Emblem and Lady Inchiquin. Messrs. Chaplin Brothers in their second prize set included Mrs. Tresham Gilbey and Mabel Morse of great beauty. The best three were Margaret Dickson Hamill, Lord Charlemont and Mrs. Henry Morse, shown by Mr. G. Prince. Mr. H. Drew was second. Snow Queen, shown by Messrs. D. Prior and Sons, was the best hybrid perpetual variety, and Gloire de Chédane-Guinnoiseau, shown by Messrs. J. Crosfield and Son. The best basket of a hybrid tea variety was Mrs. H. Bowles, shown by Mr. G. Prince, and Messrs. Chaplin Brothers were second with the same variety. Mme. Jules Gravereaux was shown in the first prize basket of a tea variety by Mr. C. Gregory and also by Mr. Mattock, who was second. Mrs. C. Lamplough, shown by Messrs. Chaplin Brothers, was the best basket of any variety of hybrid perpetual, hybrid tea or tea rose put into commerce since January 1st, 1919, and Captain Kilbee Stewart, shown by Mr. G. Prince, was second.

ARTISTIC CLASSES.

Several well arranged and well grown roses were exhibited in the artistic classes. The dinner-table decorations excelled the exhibits

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in all the other classes. Both the arrangement and conditions of the blooms in the bowls of mixed roses left much to be desired. Too much foliage had been used and the stalks of the blooms were not sufficiently long to form effective groups. The popularity of the variety Mme. Butterfly was noticeable. It was exhibited in nearly every class, and in many cases it was awarded a prize. Very beautiful specimens in perfect form were exhibited by Mrs. Courtney Page. The small rose foliage used with this rose gave a charming effect to the whole table. Mrs. F. Charlton gained a second prize in this class. Mrs. E. P. Butcher had some lovely blooms of Los Angeles, and Mrs. H. Barton made an attractive group with Emma Wright.

Mrs. Oakley Fisher was awarded the Nickerson Prize for a decoration of cut roses for a dinner-table. Ophelia was the variety used. Mrs. H. Barton was also competing for the Nickerson Prize, and received a second for the arrangement of Lady Inchiquin and a first prize for a bowl of mixed roses in another class. In a special class for competitors who had never won a first prize in the decorative section, Miss A. K. Lock received a first and Miss G. M. Zelley a second prize.

In vases of cut flowers, Mme. Butterfly was again the variety which received the first prize. Miss M. E. West was the exhibitor, and Mrs. Courtney Page won a second in the same class. The baskets of roses shown by Miss Griffith and Mrs. F. Charlton were both artistically arranged and in excellent condition.

In one of the table decoration classes, single varieties only could be used, and the beautiful blooms of Irish Fireflame were much admired. Mrs. Colston Hale won the first prize and Mrs. Oakley Fisher the second. In all the above classes amateurs only were allowed to exhibit. More vividly coloured varieties were, in many cases, used in the three open artistic classes. A table decoration of striking appearance was staged by Mrs. L. R. May, who used the variety Mrs. Henry Bowles to the very best advantage. Betty Uprichard and Roselandia could also be seen. Mrs. C. A. Tisdall had well shaped blooms of Mme. Butterfly in a prize exhibit; and Mrs. A. R. Bide also won a prize for the same variety arranged in a basket.

NEW AND NOTEWORTHY ROSES.

SALTAIRE.—Deep velvety crimson blooms, almost resembling burnt cardinal, characterise this hybrid tea variety. The foliage is rather excessive. The fragrance of this variety is exceedingly sweet. Shown by Messrs. Alex. Dickson, Limited.

APHRODITE.—The blooms of this hybrid tea are made up of rather pretty crinkled petals of a delicate pink. Buds are of a good shape. Shown by Messrs. Easlea.

MISS ANNA MARIE BALLEY.—A fine garden hybrid tea variety, orange yellow centre. Shown by Messrs. Easlea.

BEDFORD CRIMSON.—A fine scented crimson variety, very free and a vigorous grower. Shown by Messrs. Laxton Bros.

LITTLE JOE.—Good blooms of a fiery red colour, with petals cut at the edges. Shown by Messrs. D. Prior.

LUNA.—A hybrid tea variety with large blooms of perfect shape and of a pale yellow colour, which is deeper in the bud. Shown by Messrs. D. Prior.

LITTLE JULIET.—A good hybrid tea variety, carrying pinkish blooms slightly tinged with yellow. Shown by Messrs. D. Prior.

VIVID.—A fine exhibition variety, carrying well shaped flowers of a light crimson shade. The petals are of rich substance. Shown by Messrs. Frank Cant.

ELSE POULSEN.—A fine large single polyantha variety with beautifully frilled flowers of a delicate salmon pink shade. Shown by Messrs. D. Prior.

HERA.—A strong, bushy hybrid tea variety, with light crimson blossoms composed of rather prettily cut petals. Shown by Messrs. D. Prior.

CHARMING PRINCESS.—A good Pernetiana variety, the petals of the flowers having a yellowish base, which becomes pinkish on the outer margins. Shown by Messrs. D. Prior.

JOAN HOWARTH.—A fully double hybrid tea variety with flowers made up of large, substantial petals of a deep flesh pink colour. Shown by Messrs. Bees, Limited.

FIREFLY.—An excellent crimson hybrid tea sort, carrying sweet-scented, almost double blooms. The petals are of good substance and the foliage is also fine. Shown by Messrs. Bees, Limited.

CESTRIAN.—A fine hybrid tea exhibition variety with slightly fragrant rose-pink blooms made of close, overlapping petals of good substance. The foliage is handsome. Shown by Messrs. Bees, Limited.

NORA HENSLOW.—A good crimson single hybrid tea variety, with flowers made up of spreading petals and a good contrasting central cluster of stamens. Shown by Mr. F. Evans.

MURIEL CRONSHAW.—A sweetly scented hybrid tea variety carrying good white blooms with reflexed petals. Shown by Mr. F. Evans.

JOHN RUSSELL.—A fine hybrid tea exhibition variety of good habit. The petals are of good substance and of a deep crimson shade. Shown by Messrs. Dobbie and Co., Edinburgh.

MRS. TALBOT O'FARRELL.—A good pernetiana variety which will be found suited for all garden work. It is of a good upright habit and carries long, oval pointed blooms of a pink tinged with yellow colour. Shown by Messrs. S. McGredy and Son.

DORIS TRAYLER.—A hybrid tea variety of good habit and very free flowering. The colour of the blooms is a shade of yellow orange, while the outside of the petals is a crimson red. The foliage is good and appears mildew-proof. Shown by Messrs. McGredy and Son.

EVA EAKINS.—A fine pernetiana variety with blooms of a deep salmon pink contrasting well with the handsome well grown foliage. Shown by Messrs. McGredy and Son.

PATIENCE.—This hybrid tea variety is free and bushy, carrying well shaped blossoms with slightly reflexed petals of an almost crushed raspberry colour. Shown by Messrs. McGredy and Son.

WHITE ENSIGN.—We have already said that this rose is decidedly the best new variety of its type for some years. The perfectly shaped and dead white flowers of medium size are well carried on graceful upright stems, while the foliage is also to be admired. Shown by Messrs. McGredy and Son.

MRS. C. W. EDWARDS.—The flowers of this upright hybrid tea variety are of a light crimson shade with a yellow base, providing a vivid contrast to the dark green foliage. Shown by Messrs. McGredy and Son.

LADY LESLIE.—The fine well formed deep yellow flowers of this hybrid tea variety are rather inclined to break to pink. The flowers are carried well on stout, erect stems. Shown by Messrs. McGredy and Son.

MRS. S. PATON.—A vivid contrast is provided by this hybrid tea variety with its medium-sized flowers of a rose pink shade and its dark glossy green foliage. Shown by Messrs. McGredy and Son.

MARION CRAN.—The large well formed blooms of this hybrid tea variety are of a deep reddish-shaded pink composed of petals of rather a soft waxen texture. Shown by Messrs. McGredy and Son.

LADY WAKEFIELD.—This hybrid tea variety is a sport from Padre, and carries very delicate yellow blooms. The outer margins of the petals are tinged with rose pink. Shown by Messrs. B. R. Cant and Sons.

LADY HELEN MAGLOONA.—A vigorous hybrid tea variety carrying strawberry-coloured blooms which are neat and compact with close overlapping petals. The flowers are very fragrant. Shown by Messrs. Alex. Dickson, Limited.

LADY WORTHINGTON EVANS.—A very fine crimson red hybrid tea variety with the individual flowers of good shape and form. Shown by Messrs. Alex. Dickson, Limited.

FRANCIS SIMS.—A vigorous hybrid tea variety bearing numerous light, delicate rose pink blooms. The colour shades to a lighter tone towards the base of the petals. Shown by Messrs. Alex. Dickson, Limited.

DAME EDITH HELEN.—The large shapely blooms of this hybrid tea variety are of a fine shade of pink. These are carried on stiff, rather stout stems. Shown by Messrs. Alex. Dickson, Limited.

LADY MARGARET STEWART (hybrid tea) is characterised by its large, oval, egg-shaped blooms of a pure whitish yellow shading to a darker tone at the base of the petals, with a slight fragrance. Shown by Messrs. Alex. Dickson, Limited.

PRINCESS ELIZABETH OF GREECE.—Another hybrid tea variety, carrying medium-sized deep orange yellow blooms, which stand out well from the dark glossy green foliage. This variety looked well arranged in a basket. Shown by Messrs. Chaplin Bros.

MARS.—A sweetly scented hybrid tea variety, bearing medium-sized flowers of a shade of coppery pink, which becomes shaded with a bluey mauve, tinged with yellow at the base. Shown by Messrs. Chaplin Bros.

ELLEN TERRY.—A fine, sweet scented hybrid tea which has already gained a certificate of merit. The flowers are large and of a buff colour. Shown by Messrs. Chaplin Bros.

MRS. HERBERT NASH.—An excellent sweetly scented hybrid tea variety, with large, handsome blooms of deep crimson colour. Shown by Messrs. Chaplin Bros. Certificate of merit.

J. M. HART.—A hybrid tea variety, bearing large rose pink flowers, rather inclined to "blue." It is slightly fragrant. Shown by Messrs. Chaplin Bros.

LADY SIDNEY EARDLEY WILMOT.—A strong, freely branched decorative hybrid tea variety, carrying medium sized semi-double flowers of a deep salmon pink shade. Shown by Messrs. Chaplin Bros.

SENSATION.—A hybrid tea variety with large, sweet scented fine flowers of a rich dark velvety crimson. Shown by Messrs. G. Beckwith.

IVY MAY.—Hybrid tea. The rose pink blooms, flushed with gold on the outside of the petals, are most attractive. Shown by Messrs. G. Beckwith. Certificate of merit.

JOHN HENRY.—Another rich pink hybrid tea, carrying handsome flowers which are not too full. Shown by Messrs. G. Beckwith.

BLOSSOM.—The peach pink blossoms of this hybrid tea sort are flushed rose red, which shades to yellow at the base of the petals. There is a suggestion of tea fragrance. Shown by Messrs. G. Beckwith.

AUTOCRAT.—The large blooms of a pink to blush red shade of this hybrid tea variety are well formed and carried gracefully on long stems. Shown by Messrs. G. Beckwith.

ANGELE PERNET.—A vigorous Pernetiana variety, bearing vivid orange to copper blooms which are suffused with gold. Shown by Messrs. G. Beckwith.

ANNE.—A distinct and attractive hybrid tea sort with globular fragrant flowers of a cherry pink. Shown by Rev. J. H. Pemberton.

I. ZINGARI.—A fine semi-double sort with blooms of an almost coppery tint. Shown by Rev. J. H. Pemberton. Certificate of merit.

PENELOPE.—A hybrid musk, blossoms pink and well shaped. Shown by Rev. J. H. Pemberton. Gold medal.

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THE PROVINCIAL ROSE SHOW AT BATH

THE combined show of the Bath Horticultural Society and the National Rose Society, which was held in the beautiful Victoria Park at the western city on July 9th and 10th, was a great success from every point of view. The entries were good and the exhibits reached a high standard of excellence.

With his usual generosity, the Mayor of Bath entertained a large party to luncheon, and pleasant speeches were made.

The President of the National Rose Society as the occasion demanded, was humorous and enlightening. Mr. Frank Cant made a delightful speech, and although Mr. H. R. Darlington spoke about roses and their fragrance, when he should have dilated on the unique beauties of the City of Bath, he was informative. But it remained for Mr. J. Pitt, who responded to the toast of the Judges, to coin the epigram of the day in "a raiser's pipe is full of sacrifices," and, as he said, we owe the delightful roses of to-day to the sacrifices made by raisers.

But, to paraphrase, "the show is the thing" and roses come first. The champion trophy was won by Mr. C. Gregory, who had thirty-six excellent blooms of Rev. F. Page Roberts, Mrs. E. J. Haddon, Earl Haig, Candeur Lyonnaise, George Dickson and similar varieties. Messrs. Frank Cant and Co., who were second, had charming blooms of British Queen, Florence Forrester, George Dickson, Candeur Lyonnaise and Lady Inchiquin. The best twenty-four blooms were set up by Mr. George Prince and these also were admirable, especially Lord Charlemont, Lady Inchiquin, White Maman Cochet and A. Hartman. Mr. C. Gregory was second.

The class for twelve blooms of roses distributed since January 1st, 1920, was particularly good, and Mr. Prince showed Souvenir de Claudius Pernet, Lord Charlemont, Mrs. C. Lamplough, Earl Haig, Muriel Dickson, Lady Inchiquin and Bessie Chaplin of great merit. Messrs. F. Cant and Co. in their second fine collection had Captain F. S. Harvey-Cant, Mrs. C. Lamplough and Mabel Morse of great excellence. There were many exhibitors of a basket of cut roses and Mr. C. Gregory was first with Mrs. C. Lamplough, and Messrs. A. Warner and Sons were second with Captain F. S. Harvey-Cant.

The five baskets of decorative roses were also of high quality. Messrs. S. McGredy and Sons showed Lord Charlemont, Mabel Morse and Gwyneth Jones of lovely appearance. Mr. J. Mattock had Lady Inchiquin and Louise Crette of considerable merit in his second prize set. Mr. Gregory showed The Queen Alexandra Rose, Golden Emblem and Mabel Morse and won the first prize for three baskets, and Mr. H. Drew, who was second, had a charming basket of Lady Inchiquin. Messrs. S. McGredy and Son, with a handsome basket of Mrs. Barraclough, was alone in the class for a basket of a new variety and deservedly received the first prize.

The extent and gorgeousness of the groups of cut roses astounded the general visitors, and, indeed, they were worthy of the highest admiration. Mr. E. J. Hicks had the best large group and had built up massed pillars of Climbing Ophelia, Los Angeles, Mme. Butterfly. Mr. George Prince, in his second prize handsome group, had arches of American Pillar, K. of K. and Red Letter Day.

In the medium-sized group Mr. C. Gregory was first, and he had many desirable sorts. The Rev. J. H. Pemberton was second. Mr. J. Mattock had the best smaller group. The best twenty-four varieties were staged by Messrs. A. Warner and Sons, which included Isobel, Hortulanus Budde, Betty Uprichard and Lady Roundhay in a fine exhibit. Messrs. F. Cant and Co. were second in this popular class, and Mr. E. J. Hicks had the best twelve varieties.

In the amateur section the Jubilee Trophy was won by Mr. J. W. Hart, Potters Bar, who had lovely blooms of Mrs. C. Lamplough, Gladys Harkness and Candeur Lyonnaise (the premier bloom of the section), among his twenty-four exhibition blooms. Mr. F. Dennison was a good second. Mrs. Hy. Balfour had the best twelve varieties, and Mr. A. B. Pim, was first with six varieties. Mrs. Hy. Balfour, showing White Maman Cochet, Mrs. Hubert Taylor, Maman Cochet and other fragrant varieties, was first with tea roses.

The artistic classes were very charming. Mrs. Courtenay Page had the best dinner table decoration and was also first with a lovely bowl of roses. While Mrs. Oakley Fisher has the best vase of roses. In the open class Mr. E. J. Hicks was first with a bowl of roses.

NEW ROSES.

The number of new seedling roses exceeded expectations and most of them possessed distinct merits.

ARTHUR COOK.—This splendid hybrid tea rose had previously won the certificate of merit and now received the highest award. It is a fully double bloom and very shapely in all stages of development. The broad petals are substantial and indicate a long period of usefulness. The colour is rich crimson flushed with velvety maroon. The neat foliage is crisp and firm and the stems possess few spines. Gold medal to Messrs. S. McGredy and Son.

DORIS TRAYLER.—A medium-sized hybrid tea variety, which is recommended for all purposes. The colour is old gold flushed with peach pink at the base of the petals. Certificate of merit to Messrs. S. McGredy and Son.

DUCHESS OF ATHOLL.—The colour of this hybrid tea rose is particularly fascinating and may be described as golden orange lightly flushed with peach. It is very beautiful in the bud and half open stages, but when fully open the charm of shape is lost, but the colour is fully retained. The stems are purplish, the neat foliage is very firm and the footstalks of the flowers are spineless. Certificate of merit to Messrs. Dobbie and Co.

DORIS TRAYLER, A FINE HYBRID TEA.

NANETTE.—This is a most delightful Wichuraiana variety. It bears plentiful clusters of fragrant, semi-double flowers which open roundly, disclosing a pretty cluster of golden stamens. The margins of the pure white petals are attractively undulated. It is recommended for pergolas and arches. Certificate of merit to Mr. Elisha J. Hicks.

THE BATH SOCIETY'S CLASSES.

Two large marquees were required to hold the exhibits in the classes arranged by the Bath Horticultural Society and these all were undoubtedly the finest that has been seen in Bath for many years.

In the open classes the groups of miscellaneous plants were very artistically arranged and the first prize arrangement of Mr. C. H. Smith was very delightful. The group of begonias which won the first prize for T. Crawford was excellent.

The first prize group of hardy flowers, arranged by Messrs. H. and W. Evans, was ideally beautiful, as was Mr. C. Wall's group of cut carnations; Messrs. Blackmore and Langdon's delphiniums were also admirable.

Sweet peas were of especially high quality and Sir Randolf Baker, Bt., Ranston, Dorset, was particularly successful in the open classes in which he showed magnificent spikes of such varieties as Wild Rose, Powerscourt, Fordhook Orange, Charming and Mrs. Arnold Hitchcock. In the amateurs' classes Mr. F. Churchward, Newton Abbot, was the chief prize winner, and he had lovely vases of Royal Sovereign, Pimpernel, La France and Wild Rose.

With roses Mr. E. Rayer was very successful, and he won the silver challenge cup and also had the best twelve blooms in the class open to those who do not employ a gardener.

THE SEMI-DOUBLE BLOSSOMS OF NANETTE.

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SIMPLE GARDENING

DAHLIAS.

THE dahlia is a tender plant as regards frost; brittle and succulent of stem, and easily damaged by strong winds. Although tuberous-rooted, the plants soon show signs of distress when a dry spell of weather comes. If ordinary care be taken during the growing period, these plants do not cause the cultivator much real trouble; it is when we neglect them that damage is often done which cannot be repaired. The majority of lovers of large, brightly coloured flowers appreciate the dahlia, and those who are inexperienced only need a few hints in order to be successful with them. The plants require a deep, rich soil, and even those growing in such, now, will be all the better for a surface mulch. Plants in a poorer-rooting medium certainly need a rich surface dressing in addition to a mulch that will prevent undue evaporation. When engaged in attending to the plants, be sure that you avoid treading upon the soil near to the roots, as the plants do not thrive as well as when the soil is left in a natural open condition just above and around the tuberous roots. Spread on the surface around each plant half-rotted stable manure quite 3ins. deep. This dressing will be sufficient for all plants; failing it, scatter 2 oz. or 3 oz. of bone-meal on the border soil and cover it 2ins. deep with old potting or box soil or decayed rubbish from the garden heap and ashes from the smother fire, and apply one good soaking of weak manure water, now. Tie up the branches and add more stakes where needed.

TREATMENT OF SUMMER BEDDING OUT PLANTS.

Arranging and planting the bedding-out plants is always a busy and anxious time for the gardener. After this work is done some cultivators do not trouble themselves further about the plants, beyond giving applications of water in dry spells, such as we have recently experienced. But to obtain the very best from these border plants we must attend to them, if not daily, several times each week. It is not advisable to begin watering too soon, and when one does one should continue it consistently and apply plenty of it. There are two courses to take: one, thorough root soakings; the other, evening spraying of foliage plants, or the foliage of flowering plants, but not the blooms. The spraying refreshes, and prevents undue evaporation. Neat surface mulches are invaluable, as they, too, conserve moisture, prevent the sun unduly scorching the surface roots, and maintain the latter in a cool condition. Then there is the work of disbudding to attend to; the finest flowers on some stems are obtained by removing smaller side ones and, in the case of clusters, those around the central one. All fading flowers and leaves should be picked off daily if possible, or at least twice a week, if the beds are to be kept bright and fresh-looking. The removal of seed-pods and fading flower stems strengthens the remainder and the young ones to come. Staking is very essential and should be done neatly; while supporting the plants, the stakes should not be too prominent, and the ties ought to be just loose enough to allow the stems to grow.

STRAWBERRIES FOR FORCING.

Early runners taken from strong fruiting plants, firmly potted in good compost and nicely wintered in dry, cool quarters, will ensure success. I remember a lady showing me some plants in pots on her greenhouse shelf one spring, and how proud she was of them. But this pride was damped a little, owing to the lateness of the plants in flowering, and full disappointment came when I reluctantly told her that there would not be any flowers and, of course, no fruit. The real cause of the failure was the selection of quite unsuitable runners. The first young plant—the one nearest to the parent plant—on a runner should be layered, and all others beyond, on the same runner, should be cut off. These young layers may be selected from one year old plants that have borne fruits, or from two year old ones—also from those that have fruited. Often enough, one finds specimens that have not fruited surrounded by a lot of runners, very promising; and other plants, in the same row, possessing only two or three. The latter are the ones to select, and not those growing on the fruitless specimen; indeed, this latter plant, and all similar, should be dug out and destroyed. Layer direct into 3in. pots, using good fibrous loam, about six months old from cutting, and a small quantity of horse manure. Place a flat stone on the runner in the pot to steady the rooting plant and retain moisture round the crown and hasten the root growth. In due course, pot the young plants firmly in 6in. pots, this time adding a little bone-meal.

PLANTING OUT FORCED BULBS.

I know that many lovers of bulbs grown and flowered in pots, pans and boxes, discard them, as they think the bulbs are quite useless for the production of flowers in the future. If the bulbs are properly treated after the flowering stage is past, and, also, carefully planted out in an open border, a wealth of blossom will follow there year after year. The months of July and August are very suitable for planting such bulbs, and suitable positions are open borders or open quarters in new shrubberies. But for cutting purposes I much prefer the open border somewhere in the vegetable garden. To plant in orchards and similar positions where the ground is not kept quite free from coarse weeds is to court failure, as the full strength of each bulb, weakened by forcing, should be maintained and gradually increased, not lessened. Grade the bulbs and clean them without injuring their crowns; keep the kinds distinct and thoroughly dig and manure the border prior to planting, except in the cases where leaf-soil is abundant—then use the latter liberally and no manure.

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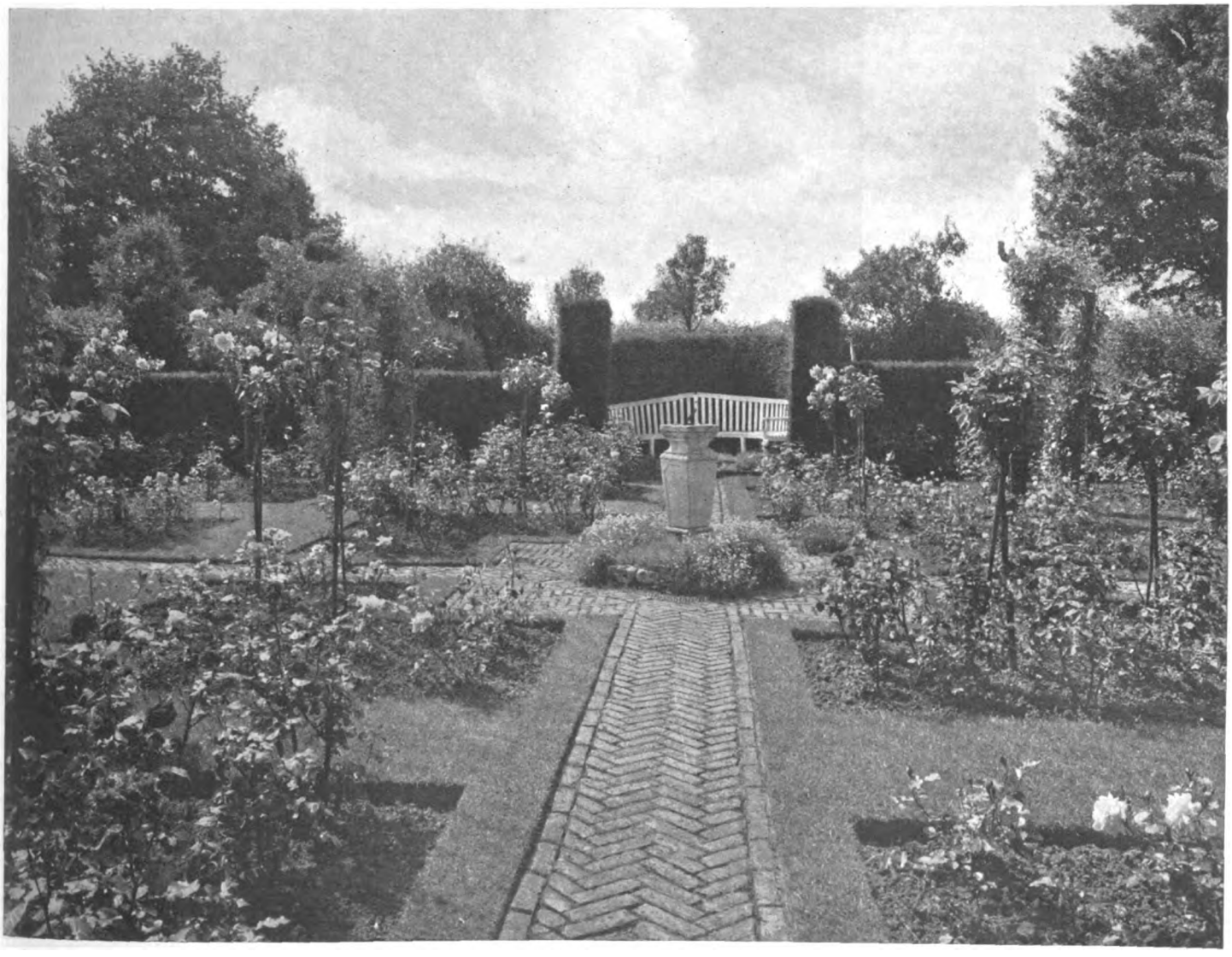

A SIMPLE YET EFFECTIVE DESIGN FOR A ROSE GARDEN. THE APPEARANCE OF THE BEDS IS GREATLY ENHANCED BY THE GRASS EDGINGS AND THE RED BRICK PATHS, WHILE THE EFFECT OBTAINED BY COMBINING VIGOROUS GROWING STANDARDS ALONG WITH DWARF VARIETIES IS MOST ATTRACTIVE.

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PLANTS FOR THE PATHSIDE

THAT PART OF THE GARDEN FROM THE GATE TO THE FRONT DOOR IS PARTICULARLY SUBJECT TO CRITICISM, BUT IF A FEW OF THE UNDERMENTIONED PLANTS ARE INCLUDED THE RESULT SHOULD BE MOST GRATIFYING.

I OPEN the gate and any intelligent person would tell me that a few steps in space and a few seconds in time would find me at the front door. There is the path, perfectly straight, just a trodden brown earth path, there are no impedimenta, all is quite easy and simple.

But it isn't as simple as it looks, for the intelligent person was asked to look at the path and I see the flowers that are now growing in the beds at the sides, the flowers which have faded, but which I saw last time I passed this way, and more, those that will blossom before winter lays its hands on them all and sends them to rest.

There is the old apple tree leaning so gracefully and perilously because it is quite hollow, and over the hollow grows a Dorothy Richardson, kindly trying to cover the wound. The orange Dorothy buds smilingly lisp, "Don't notice the hollow," the older, cream-coloured roses say, "Please look at us and not at the sorrows of age." But their warnings are useless, for the gate made a noise as it opened and a tom-tit flies out of the hollow which is its home, or, at least, its summer residence. Silly bird, for Dorothy was doing her best to keep the secret of the tree's old age.

SEA PINKS BORDERING A NARROW PATH.

To the right is a Crimson Rambler, which had been budded on to a briar stock. The rambler never did very well, whereas the briar sent up branch after branch, until the gardener said, "Plucky, persistent little beast, its rough leaves are a jolly shape, anyhow. Let both the roses grow, let 'em fight it out." So there they are, together and so unlike. Under the earth they have a common dining-room, but up in the air their leaves take their aerial nurture independently.

The two plants react differently to moisture and sun and cold. The briar leaves come out first and drop first. When the leaves of the rambler are a little wilted on hot days, those of the briar still hold themselves proudly alert. When a frost comes the rambler succumbs, but the briar proudly displays a few very fat, red haws, while its leaves become bronzed or red or orange, before they pass away and leave the plant brown and bare. But if a few mild days come in November, or even in December, the rambler may unfold pale leaves and even experiment with a few green rose buds. Then the wise old briar, like a canny Brer Rabbit, "ain't sayin' nothin'." Inside its prickly brown stem it is amazed and rather scornful of the foolish adventurous ways of the upstart Crimson Rambler, which evidently has no well established tradition as to the correct behaviour of roses in November and December. This young thing, with so recent a family history, evidently has a mind which is easily led astray by December masquerading as May.

The blood red, small, dainty, tidy blossoms of the rambler, and the large, irregular, fade-red of the briar, do not go well together. This hybrid plant is not really proper to have in the garden, but there they are, two children whom life has produced. They shall do as they like, or as they can. Year by year the gardener will watch, and perhaps some day he'll know which is the winner.

At my feet is a great tussock of sea thrift (armeria), a plant that is beautiful every day of the year. I am not sure whether I like it better when it crouches by the path like a round, green hedgehog, or when, for a few weeks, it is like a great green cushion stuck with lovely pink-headed pins; then it is full of memories: Cornwall, a high cliff, a blue sky, a bluer sea and pinkness everywhere, not only in easy places, but there are little bunches of pink on tiny dangerous ledges, masses of pink on pieces of cliff that are just going to fall down into the sea, pinkness growing among pebbles on an inhospitable old raised sea beach. This thrift had a great adventure. A community of ants made a home near its roots and threw up a mountain of earth and ant eggs into the middle of the plant. It was cleared away several times, but the ants were so persistent, that finally the ant mountain was allowed to protrude from the middle of the green tuft. That little area of earth was not long allowed to remain a desert in a country so full of seeds; first a lesser crane-bill grew into a pretty rosette, but it did not produce a flower, then a columbine made a start, but it did not get beyond three of its tiny frilled leaves, finally a spiked valerian usurped the minute desert, and now has one little blue spike proudly sitting in the midst of the pink-headed pins.

Next door, clinging closely to the ground, is a plant of dwarf mountain thyme. It covers the earth in a thick, tight way that paint covers wood. Just before it comes into blossom it has a very cosy appearance, for the buds are protected by a fine down which makes the little patch look like a miniature purplish-green blanket. Soon the flowers will be out. Then I shall stay a long time by the little plant, to see the rich reddish purple of the tiny petals and I'll lean over to break off a minute leaf that the air may be luscious with summer fragrance.

The patch of lungwort (pulmonaria) leaves is getting rather shabby. I am sorry when their time for rest comes, because I am so grateful to that little plant for producing its simple protean flowers so early in the year. Most flowers come when flowering seems so easy and so simple, for they come into a warm and sunny world, but the lungwort pushes its delicate, blue-red, red-blue flowers out of a hard earth and into an air which may get nasty tempered at any moment.

There is a fascination in these flowers, which are pink or blue and which change from one colour to another, like a chameleon in the tropics. Even their full calyx is good to look at when the flowers have fallen. I have a special copper cup in which these flowers find a place year after year. Lungwort is not one of the gorgeous flowers, but it is well worth growing for its quaint, spotted leaves and its early bravery and delicacy. I would like to know how people prepared it for the curing of lungs in the old days. I wonder if it ever did any good. But it is certain that the mother was glad to do something that might be useful to the suffering husband or child,

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and the sufferer was grateful to have any treatment to break the ennui of the long hours of waiting for the return of peace and health.

All the plants which have been used as medicine have a special human appeal; suffering is and has always been so near, so inevitable, that we cannot but look upon these helpful plants as friends and comforters. Lungwort was supposed to be good for the lungs, because its leaves have the spotted appearance of diseased lungs, just as greater celandine was good for biliousness, because its juice was yellow. I wonder if, on the same principle, they cured drunkards by letting them consort with other drunkards and turned bad-tempered folk into sweet-tempered by housing the villains together.

WHITE CANTERBURY BELLS, NEITHER ARISTOCRATIC NOR PLEBEIAN.

Somewhere in the background is a leopard's bane (doronicum), a lovely, gay plant, each blossom a foretaste of summer, each flower an August sun in April. It has, like all plants, its own proper and orderly time of flowering, but also an erratic, disorderly habit of producing a flower or two in August and one or two even in December. One wintry day you go out to see the garden, now like an old lady wrapped up in grey and brown, and you find one patch, perhaps two patches, of colour. One noon the wintry sun winked at the doronicum and as a result the plant suddenly produced two flowers, not gold, but making an effort towards goldiness. Gather them quickly, lest a frost curl up the petals and brown their tips, put them in a little green glass vase and stand them on the mantelpiece above the bright December fire. The fog may be thick, rheumatism may give you twinges, your nose may be red from a cold, but the little flowers sing a spring song which only the very stupid cannot hear. Even the flames of the fire hear and are apologetic, knowing what a poor substitute they are for the warmth and light of a May sun.

The lupins have been cut down, but their palmate leaves are busy, wide open by day, partly shut by night, but always breathing, breathing, storing up food for that time when each plant will send up its light, hollow stems to produce, one, two, three church spires, graceful like the spires of Coventry, Salisbury, but not quite as light and wonderful as the lace like spire of Ulm. The lupin paints her spires blue or blue and white, but man does not dare to paint the spires that he has made. Sometimes, however, the sun, when it draws near its setting and becomes friendly to man, so friendly, indeed, that man may look him full in the face, will pains the human spiret gold or yellow.

And here's another blue, anchusa, queer, straggly plants, hardly ever really erect, bearing in a thoroughly untidy manner its impudent and glorious blue flowers, those flowers with a cold, snow-white heart which stare at you, demanding allegiance, even obeisance, but which never become familiar, loving. How different from the hare bell, which seems just about to die of love and love for you alone.

The Canterbury bell on the other side of the path is somewhat betwixt and between the independent anchusa and the amorous harebell; it is a cosy, welcoming, homelike flower, willing to let all share in the blueness of its deep cup. Its five petals smile up at you as they turn back from the edge and show the yellow treasure. The humble bee is welcomed into the blue velvet boudoir, but, restless creature, he never stays long and yet he looks so sluggish and lazy. It is just possible that in his search for gold, he did not look round the blue room; probably thieves do not usually take an interest in the artistic furnishings of the houses they rifle.

The pink Canterbury bell is a delicate, sweet lady, but looks rather frail beside her blue cousin; the humble bee seems like a little bear when he visits her, much too rough in his manners for such an aristocratic lady, for she is Marquise La Rose, having risen socially above her family, who for generations have been merely Mr. and Mrs. Blue. The white Canterbury bell is neither aristocratic nor plebeian, but a strange and not very satisfactory exotic, whose complexion easily turns into an unpleasant brown when hit by a rough or cold wind.

As I leant down to look at a black and yellow ladybird on a grass plant, I heard a voice: "So you have come. We thought we heard the gate shut, but that was a long time ago."

O. A. MERRITT HAWKES.

THE DAISY BUSHES

BY SIR HERBERT MAXWELL.

The olearias or tree daisies of New Zealand consist of about forty species, with, in addition, a number of fine hybrids, the majority of which remain unsurpassed for their beauty of habit and profusion of blossom. As Dr. Cockayne, the eminent botanist, has said in one of his books, "their value for garden decoration equals that of the veronica." They fall naturally into two or three groups, which include species suitable for planting in gardens near the sea where moisture is plentiful, or in rocky and rather dry areas, or again, at the other extreme, in swampy positions. A wide range is thus offered in their cultivation, and with their handsome and striking appearance and charming flowers, they are deserving of being more widely cultivated in our gardens.

ALTHOUGH most of the shrubs from New Zealand, especially those from the North Island, will not endure the rigour of winter in midland Britain, yet there are wide tracts of our country—practically all parts near the sea—where many of them flourish as freely as in their native land. Among these are the daisy bushes—olearia—than which there is no class of evergreen that flowers more profusely, none better fitted to relieve the monotony which too commonly prevails in private shrubberies and public watering-places, none less exacting in cultural requirements where the climate is mild enough to suit them. The hardiest of the genus is O. Haastii, which endures even the trying extremes of heat and cold of London, and is pretty generally known and grown. It shrouds itself with a cloud of white blossom in August and

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may be grown as a useful hedge plant near the sea; but, like all the other species, must be protected against rabbits.

O. chathamica and O. semidentata, both from the Chatham Islands, are reckoned among the tenderer species, yet the former grows well in the open in the Edinburgh Botanic Gardens, which are not blessed with a languorous climate. As for O. semidentata I cannot speak with any certainty, for I think that the plants we have grown under that name at Monreith are a narrow-leaved variety of O. chathamica. Both are very desirable shrubs, with thick, leathery, ever-green leaves and large solitary flowers, those of the latter having white or pale mauve ligulate rays round a dark violet centre, while the ray florets of O. semidentata are described as purple.

One of the tallest and most ornamental species is O. macrodonta sometimes erroneously called O. dentata, which is a tender Australian species. It may grow 20ft. high and makes a beautiful appearance when loaded with broad corymbs of small white flowers. It is sometimes confused with O. ilicifolia (holly-leaved), but its foliage is much broader and more like a holly than that of O. ilicifolia, whereof the leaves are linear-oblong or lanceolate. The two species are equally ornamental, growing to the same height and diffusing a similar musky fragrance when bruised. I used to wonder why, notwithstanding the vast quantity of feathered seeds that float away from these and other species of olearia, it was so seldom that one came across a self-sown seedling, nor was it until quite lately that the reason was found. A piece of ground having been cleared for the erection of a tool shed, many scores of seedling O. macrodonta colonised it, as no doubt they would do any bare ground not under tillage.

O. nitida is a very handsome evergreen, bearing plenty of large, rounded corymbs of white flowers in May and June.

OLEARIA HAASTII, THE HARDIEST OF THE DAISY BUSHES,

ONE OF THE MOST ORNAMENTAL SPECIES, OLEARIA ILICIFOLIA WHICH THRIVES IN A SHELTERED POSITION.

The leaves vary from 1½ins. to 3½ins. in length, bright green and shining above, white and satiny beneath. Inferior in beauty to this species is O. avicenniæfolia, but valuable in that it defers flowering till August. O. Colensoi is well worth growing for its fine foliage, the leaves being 6ins. long, very thick and leathery, shining green above and white below. The flowers are rayless, brownish purple, and are borne in racemes. Cheeseman reports this fine species as growing 30ft. high. O. Traversii, from the Chatham Islands, grows equally tall, with leaves 1½ins. to 2½ins. long, but it is a disappointing shrub, bearing flower panicles in profusion, but the flowers are rayless, greenish-greyish-yellow and inconspicuous, altogether not desirable for ornament.

Very different in appearance from these large-leaved species is O. nummularifolia, a stout, densely branched shrub which, so far, stands 6ft. high at Monreith and as much in width. Its white-rayed flowers are not borne in the same lavish profusion as those of several other species, but its foliage entitles it to a good place, being of a rich olive green. The rounded leathery leaves, never more than ½in. long, are closely set along the branchlets with revolute margins.

O. stellulata or Gunniana, from Tasmania, are so nearly alike that I cannot pretend to distinguish between them. They (or it) cannot be accounted as hardy as the species mentioned above, but they flourish freely in maritime districts, being covered with pure white blossoms in May and continuing much longer in bloom than any other species known to me. In stature they do not seem to exceed 4ft. or 5ft. O. insignis is reported as high as 6ft. in New Zealand, but I have not seen any specimen more than half that height in this country. It differs remarkably in appearance from any other daisy bush, having earned its specific name insignis—"distinguished"—by reason of its great leaves and large white flowers, 2ins. to 3ins. across. Being native to the South Island of New Zealand it is probably hardier than it gets credit for; at all events, I have seen it growing happily far from the sea in Sussex.

Different again from all other forms of olearia is the group represented by O. virgata, of which the small, narrow leaves are set along the slender branchlets in opposite fascicles, giving the shrub a plume-like appearance. This completes the list of daisy bushes whereof I have personal experience; but there are others among the five and thirty species of olearia indigenous to New Zealand which seem to be worth planting. Among these is O. lacunosa, with narrow leaves 6ins. and 7ins. long, about which Mr. Cheeseman observes that "its singular foliage should induce horticulturists to make the attempt to grow it!"

O. Lyallii, from the Auckland Islands, reaching a height of 30ft., with leaves 8ins. long; OO. Traillii, angustifolia and fragrantissima, from the South Island, seem to be desirable subjects.

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HARDY ORCHIDS IN HERTFORDSHIRE

ORCHIDS of various types are plentiful in this country and they, of course, are of much interest to all lovers of our native wild plants when met with. There are no fewer than a dozen varieties that I have discovered myself in a radius of ten miles. They are found in the woods, pastures, chalk hills and moist meadows, according to the type and their requirements. I have noticed that practically in every case one species is never alone, but usually one or two other species are close at hand—in one instance about nine species are growing in a quarter of a mile radius; this I consider is an exceptional piece of rich flora.

We find Orchis Morio in abundance in the moist turf, in all its varying handsome shades; from the deepest purple to the palest blush pink, with very many intermediate shades, of which the delicate salmon pinks are favourites. Pure white forms and creamy also occur, but these are rare with us. The common name "Green Winged Orchis," describes beautifully the feature of the flowers, whose two side petals or wings have lines through them of a bright green colour. The flowers are carried on spikes a few inches high, from a tuft of sturdy dark green leaves.

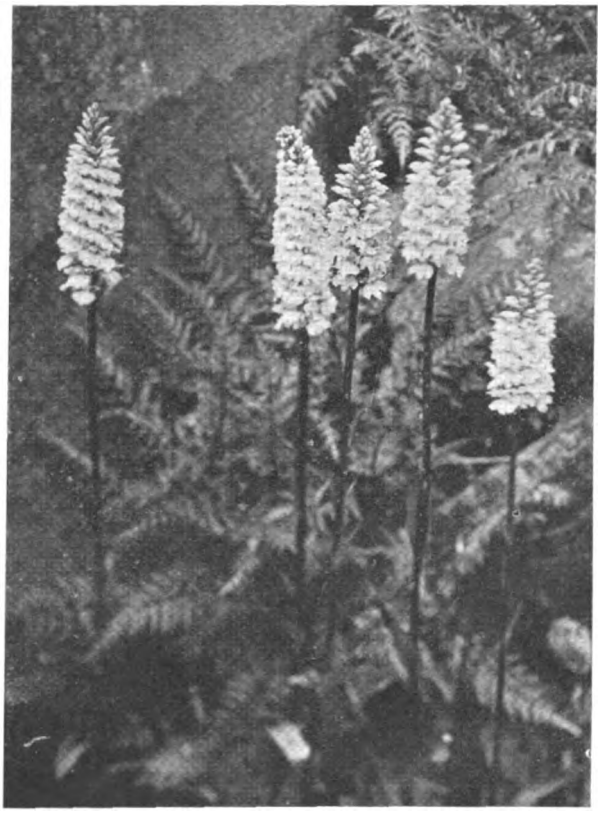
Orchis mascula, known as the Early Purple, abounds in great numbers; usually in moist, shady places. The woods appear to produce by far the best specimens, where the flower spikes attain a height of a foot or so, carrying the deep purple blossoms, and the leaves are long and fat, showing the results of a comfortable home. The leaves are conspicuous by the myriads of dark brown spots that share the upper surface, in odd cases the leaves are spotless. The colour of the flowers does not vary very much, and it is in very rare instances that an albino is observed.

In similar positions we find the Twayblade, Listera ovata, with its broad, oval, heavily veined leaves, that are situated two or three inches from the ground on its round stem. Only two leaves are produced on one stem and they are directly opposite. From the middle it throws up its 6in. to 9in. flower spike, carrying many curious green flowers which are certainly more quaint than pretty. It does not form tubers, as do the two preceding items, but forms dense mats of fleshy roots.

Habenaria viridis, the Frog Orchis, is again not very handsome to look upon, having small green flowers on 6in. stems, but this is not very common. Its leaves are long, narrow and bluntly pointed, and palmate tubers are formed.

Habenaria bifolia, the Butterfly Orchis, is fairly common in the woods, where it produces a pair of opposite, glossy, pale green lily-of-the-valley-like leaves. Several large flowers are carried on a 12in. stem in May and June. They are a creamy colour, the petals being arranged to present a starry appearance, and possess an extremely long spur in the rear, but the likeness to the butterfly is rather distant. The flowers give off a delicate sweet perfume, which is most pronounced at the close of a warm day. The tuber it makes is long and runs out to a point.

Spiranthes autumnalis, the Autumn Lady's Tresses, seems rather uncommon. It is quaint, yet handsome in its way, with numerous tiny white flowers arranged in a single row that winds round and round the 3in. slender stem in a spiral manner; they are also fragrant. After flowering it forms a rosette of short, sturdy glossy green leaves which sit perfectly flat and do not exceed an inch in height; these remain so, until shortly before the next flowering period, when they wither away. Two or three ovate tubers are formed underground in a cluster. It is autumn flowering.



THE WHITE FORM OF THE SPOTTED ORCHID.

Ophrys apifera, the Bee Orchis, has numerous stations in Hertfordshire, and is usually to be found in a chalky neighbourhood, where it occupies sunny aspects and dry positions. It is quite one of the favourites and certainly very popular, with its handsome flowers, made up of three rosy-lilac petals and a lower lip of a dark brown colour water-marked, as it were, a lighter brown shade. The edges of the lip are rolled backwards slightly and at once give the appearance of a velvety bag or pouch, strongly resembling the body of a bee, hence its name. The flowers are borne on spikes 6ins. to 12ins. high in June and July. It forms oval tubers and has bright green leaves up to 6ins. in length by about ¾in. in width.

Orchis ustulata, the Burnt Orchis, is in flower at the same time, and also occurs in chalky districts, but is not so common by far. It is a neat and curious little orchid, very dwarf in habit (3ins. or so), with between ten and twenty small flowers thickly placed on short spikes. These are of a deep purple colour and a lip of white, spotted with purple, contrast greatly and break the monotony of a dull shade. Small oval tubers are also produced in this instance.

Gymnadenia conopsea, the Sweet Scented Orchis, is a species the scent of which is one of the chief features, being extremely sweet and fragrant. It inhabits the dry, hilly pastures in the vicinity of chalk, and its rosy flowers on dense slender spikes poise gracefully above the short grass. The flowers appear in June and many constitute a spike. The foliage is long and narrow and the tubers it makes are palmate with four or five points or fingers. Creamy white forms are rarely found and they are quite good.

Epipactis grandiflora (the White Heleborine) rarely frequents our woods where chalk is in evidence. Its dull green lanceolate leaves clasp its 18in. stems at short intervals and from the axils its sessile, creamy-white flowers, yellow lipped, are produced during the months of June and July. For some reason or other the flowers fail to expand themselves as much as would be anticipated, and therefore do not show off to the best advantage. The plant does not form tubers but, instead, makes a dense bundle of tough, wiry roots, and lies perfectly dormant in winter, whereas most of the preceding items are in leaf at that time.

Orchis pyramidalis is a handsome species having extremely fine and beautiful flowers, usually of a clear rosy pink. Variation does not seem very general, and only on odd occasions have I witnessed pure white forms. The flowers are densely arranged in a pyramid-shaped head which tops a 6in. stem. Leaves are deep green, long and narrow, and make a tuft hardly rising above the short grass in which they are found. Sunny positions on poor chalky ground appear to be their ideal habitat. Flowers June and July.

Orchis maculata, the Spotted Orchis, is one of the commonest, abounding in great numbers in the moist pastures and meadows, and sometimes in woods. The usual colour is a pinky white, but there are specimens that are pale pink, also dead white. In all cases the flowers are markedly spotted and are produced in compact heads about a third of the length of the stalk.

F. BARKER.

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BLUE IN THE GARDEN

WHO does not love blue? The colour chosen by the Roman Catholic church for the robes of the Madonna and typified by the expression "vouée au bleu," given to little maids in France to signify their devotion to the central figure of their religion. When Maeterlinck sent the children Tyltyl and Mytyl in his fairy play in search of the wonderful lucky bird, did he not choose blue for its plumage? So in the garden blue is the colour most prized by gardeners; partly for the sake of the colour itself and partly on account of the supposed scarcity of blue flowers. During the early months of last year *The Times* had an article from the pen of their garden correspondent on this subject, and though he seemed to me to be unnecessarily strict in his definition of blue, as applied to flowers, his remarks about catalogue descriptions of blue flowers were very much to the point. The blue rose, for instance, with its dingy mauve flowers and the well known Gladiolus Baron Hulot, could not be considered blue by the wildest stretch of imagination.

We must try to arrive at some sort of definition of blue in this connection. Science simply divides up white light into three primary colours, red, yellow and blue. But the extreme blue end of the spectrum is often referred to as violet and the expression "ultra violet rays" has quite a definite meaning. If we, therefore, admit all flowers which are blue according to the scientific definition of this colour and exclude all those which have much red in their composition, we shall find that we still have quite a long list.

When I speak of *blue in the garden* I do not mean that we are to have none but blue flowers, but rather that the dominating note might be blue, bearing in mind Whistler's stinging retort to the critic of his symphony in white: "Bon Dieu, did this wise person expect white hair and chalked faces? And does he then, in his astounding consequence, believe that a symphony in F contains no other note, but shall be a continued repetition of F, F, F? . . . Fool!!"

Blue in the garden can easily be overdone, as a correspondent, writing from Norfolk in reply to the article mentioned above, was only too ready to admit, as "the resultant effect was too cold, at all events for an English summer." If properly managed, however, there is nothing lovelier than blue in the garden. From early spring to latest autumn we can have bold patches of blue set among the green of leaves, like a sapphire in a ring. Only a few weeks ago I came across such a patch in Nature's own garden, composed of numberless spikes of bugle (Ajuga reptans), a plant which is well worthy of a corner in the rock garden, especially in the variety with variegated leaves, which show off the blue flowers to the best advantage.

Who cannot call to mind a beechwood in early spring, with the sunlight glinting through the boughs, with their tender young green, on to patches of bluebells growing thickly beneath?

The first blue effects of the year are, in fact, obtained by the judicious use of small bulbous plants, such as the grape hyacinth, scillas, chionodoxas and puschkinias. Perhaps, too, we may add the crocus, though the flowers are a bit purplish. Then come the hyacinths, which I like to grow in tubs close to the house so that their scent may enter the open windows.

Very early the blue anemones come into flower. First of all one from the hills of Greece, closely followed by its neighbour from the Apennines, with its astounding roots like bits of knotted charcoal. Then there are the little hepaticas, so common in the woods of Switzerland. The blue of the St. Brigid and the poppy anemones cannot compete with these little wild species and are best grown mixed together with the gay red shades in a border by themselves.

Early in the year, too, come the blue primroses, raised from seed each alternate year, for the colour is not fixed. If this is not done they revert to purplish shades. A packet of mixed seed from one of the large seed firms will yield a goodly assortment of shades from pale to deep violet blue. They often come like polyanthus, several on a stem. The true blue primrose was, however, discovered by Winter and named after him. He tells us how he found it in the Himalayas "growing at the edge of the snow, a patch of blue, looking lovely with the rising sun shining on it between the trunks of the trees, in delightful contrast with the white of the snow and its whitened leaves. It was a primrose with twenty or thirty blooms; at that elevation (10,000ft.), and with that clear atmosphere, really blue without that mauvish tint which it has chosen to assume in duller England."

THE INTENSELY BLUE ANCHUSA IN A CHARMING SETTING.

It is to annuals or, at any rate, to small plants raised from seed that some of the best blue effects in the garden are due. Many of them when once established can be relied upon to look after themselves year by year. Thus a blue haze composed of myriads of the small blue flowers of the forget-me-not creeps over the garden. It is the forget-me-not family which provides us with by far the greatest number of really intensely blue flowers.

As the forget-me-nots grow pale and finally fade away the blue violas come into bloom, edging all the paths and running along the side of the lawn. Some of them are, perhaps, not quite blue within the definition, but the impression produced is certainly one of blueness. If the dead flowers are removed, these violas will keep the garden gay with blue all the summer through.

The effect is very greatly enhanced by mingling the untidy, straggling nemophila with the violas. This little pure blue flower, with its white centre, set off by the dark anthers of its stamens, has a great fascination for me. A fitting companion for this little plant is another small annual, Phacelia campanularia, which holds up its dark blue cup-like bells to the sun. Like nemophila, the anthers form the chief decoration of the flowers, but in this case they are white, and the interior of the cup is also decorated by five symmetrically placed white spots.

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Love-in-a-mist, with its pale blue flowers half hidden in a veil of green, must find some little corner in our garden, for its quaintness and old times' sake.

Though one cannot hope to get on a small scale in the garden that wonderful effect of a pale blue sea given by a field of flax in full bloom, the plant is well worth growing for its dainty pale blue flowers poised on slender upright stems. How many of us connect this plant with "flaxen hair," from the colour of dressed flax, or with linseed oil which is obtained from its seeds?

Apart from the small bulbous plants of early spring, the rock garden cannot boast of very many blue flowers, though the few there are make up in quality what is perhaps lacking in quantity. Both the little spring gentian (G. verna), with its flowers like little blue stars and the much larger stemless gentian (G. acaulis), with its great blue trumpets should both be included. Lithospermum prostratum is to the rock garden what anchusa is to the borders, one cannot say more. Then there is Eritrichium nanum, which Robinson calls the fairy forget-me-not. It is said to be ery difficult to manage. Omphalodes, too, with its ugly name, but lovely blue flowers, must find a shady corner. I had almost forgotten to mention the alpine columbine, an account of which we read in THE GARDEN last April.

THE QUAINT LOVE-IN-A-MIST WITH ITS PALE BLUE FLOWERS ALWAYS LOOKS WELL IN AN OUT-OF-THE-WAY CORNER.

There are also several quite blue veronicas which take their place on the rockery and especially one with bright yellow leaves, which make the flowers look even more blue than they really are.

Turning now to the larger herbaceous flowers of the border, June is the month, *par excellence*, in my garden for blue, for it is then that the lupins are at their best, every shade of blue to the deepest violet, planted all together in a little bed, surrounded by a crazy paved path with steps all on different levels. In the centre of this bed the taller delphiniums rear their stately spikes. Maeterlinck calls the delphinium "the rough larkspur, in his peasant's blouse who thinks himself more beautiful than the sky, looks down upon the dwarf convolvuluses, who reproach him spitefully with putting too much blue into the azure of his flowers." As if that were possible. In another corner the anchusas' intensely blue flowers form an effective background for the pink lupins.

The iris garden, too, has many blue flowers to show at this time of year. We have not space to call them all by name, and perhaps it would be invidious to single out any one for special mention. Several of the Indian poppies (meconopsis) have blue flowers and one must not leave out Jacob's Ladder (Polemonium cœruleum), with its pretty pale blue flowers with their delicate yellow stamens to set them off.

Later comes a whole assembly of herbaceous flowers on the border line of blueness, not blue as compared with either delphinium or anchusa, but quite blue when seen apart from them. Scabious, with the lovely caucasica for those who can grow it, Michaelmas daisies and the whole campanula family—both the larger plants which adorn the borders and the dainty little bells of the rockery.

In tubs on the terrace of the mansion, blue hydrangeas and agapanthus, the blue lily from Africa, are for the wealthy with glasshouses in which to winter these aristocrats of the summer garden.

For the parterre we have the wonderful Salvia patens, another member of the aristocracy too tender to spend the winter out of doors. Then there is the humble little lobelia brought from a coster's barrow to edge a bed on a suburban lawn or to form a pleasing contrast to the geraniums in a town window-box.

Of climbing plants there are several of the larger clematises with blue flowers and a curious little one with bunches of pale blue blossoms, which is Clematis Davidiana.

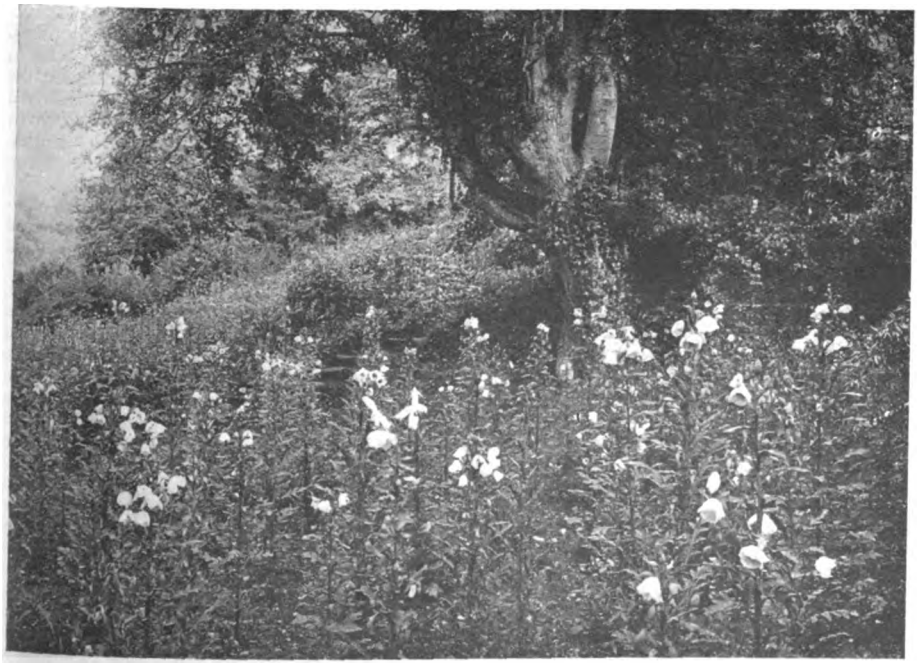
We must not omit to mention the blue convolvulus, with its beautifully shaped cup-like flowers. Unfortunately, like the blue rose, the blue sweet pea has yet to appear, though you will find Mrs. Tom Jones described in the catalogues as "bright delphinium blue"!!

The herb garden is not without its note of blue. Here is borage grown for claret cup and hyssop with its biblical reference:

"And ye shall take a bunch of hyssop, and dip it in the blood that is in the bason, and strike the lintel and the two side posts with the blood that is in the bason."

What shall we say of blue in the garden in winter? Have we not the blue tits flitting from coconut to bare bough and back again, thus keeping a touch of blue in the garden till the spring bulbs come into bloom, when that small patch seems to become a perfect carpet of delicate blue made up with the numerous nodding heads of bluebells.

EDWARD CAHEN.



THE BLUE HIMALAYAN POPPY WHICH IS SO EFFECTIVE IN THE SEMI-SHADE OF WOODLAND.

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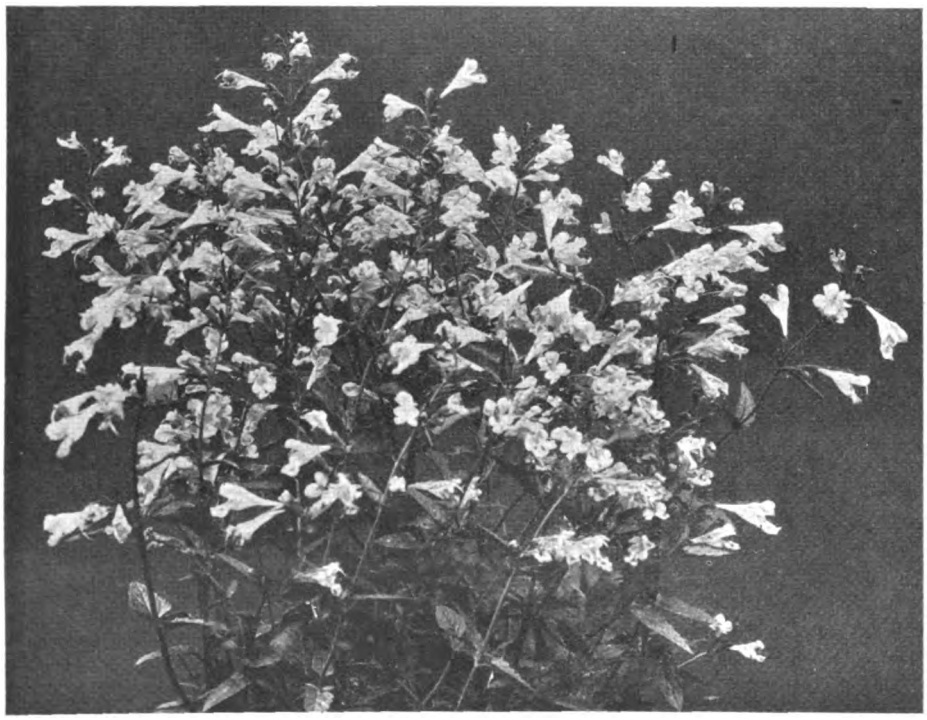
SUMMER FLOWERS AT VINCENT SQUARE

QUITE a dazzling colour display met the eye on entering the R.H.S. Hall at Vincent Square on the occasion of the Fortnightly Show held on July 14th, and the collections staged were fully representative of the season of the year. Two societies, the National Carnation and the Cherry and Soft Fruit Society, held their annual exhibition in conjunction with this meeting, and their exhibits greatly enhanced the general display. Considering the prolonged drought which has been experienced throughout the country in general during these recent weeks, the standard of the exhibits and the tones of colour of the blooms were really excellent. Chief among the floral displays were the magnificent stands of sweet peas with their blaze of colour, while carnations and roses followed not far behind. Herbaceous flowers were much in evidence, and gave that rich vivid colouring which is so warm and pleasing to the eye. The sidalcea was well represented on all the stands where herbaceous flowers were staged, and it certainly strikes one as being a handsome plant for general decorative effect in the garden where a touch of warm colour is desired.



NEPETA PAUL CHANDON WITH LAVENDER BLUE FLOWERS.

Phloxes were well to the fore, and the exhibit of Mr. H. J. Jones once again calls for special mention. He excels with the phlox, as he does with the hydrangea, and many of the varieties, which were laid out in baskets in the form of an oval carpet, were of wonderful shades. Among these we noted Rheinlander carrying large heads of salmon pink flowers with a deeper eye; Snowdrift and Mrs. Ruys, both pure white varieties; Mrs. H. Wood, delicate pink shading to deeper tones in the eye; and Nidar, of a mauve shade toning to white. Delphiniums were also staged, and provided that blue tone required to relieve the brighter shades of the phloxes. Two varieties, Millicent Blackmore and F. W. Smith, looked excellent in tall spray vases at each end of the exhibit.

Messrs. Waterers also showed a number of fine varieties of phlox, among which were Marie S. Jacob (pale lavender pink), Marechal Foch, Evelyn (deep pink) and Europa (white with a mauve pink eye).

An interesting exhibit was that staged by Mr. Ormiston Roy of Montreal of peonies grown in Canada. None of the varieties were named, but several appeared to resemble those on this side. It certainly was not apparent from the fine condition of the flowers that they had withstood a journey from Canada in cold storage. This fact serves as another striking example of how well some plants will carry over long distances uninjured.

Fruit was also well represented, and provided a tempting display. Messrs. Bunyards staged a fine exhibit of cherries, while Messrs. Daniel Brothers showed their new late black currant September Black, and Messrs. Seabrook the well known variety Seabrook's Black and a fine variety of gooseberry (Whinham's Industry). Strawberries and red currants were in the capable hands of Messrs. Laxton Brothers, who were showing such strawberries as Omega and Rearguard and their Laxton's Perfection currants. Many amateurs also contributed to the collection of fruits, along with the East Malling Research Station, which is doing such valuable work in the many fruit problems which beset the grower and cultivator in this country.

The alpines were again rather overshadowed by the wealth of border plants, for their season is shorter in our gardens than in the mountains, where spring creeps up slowly from the valleys and has only just reached the snow line. But all rock plants are not alpine, and the variety in the few exhibits showed that the rock garden need never be without flowers.

Messrs. Tucker showed the oddly beautiful little Campanula Zoysii, with bottle-shaped flowers of lavender blue closely puckered at the lips. In its home in the Julian Alps it is purely saxatile, but in the garden it grows freely in scree mixture and is far less difficult than is generally supposed. Its worst enemies are the slugs, which have a strange and detestable predilection for the rarer campanulas, and for Zoysii most of all. With it were shown Campanula kewensis a hybrid of C. excisa and much cosier, with jauntily twisted petals of violet blue; C. Wockii another hybrid with stiff, grey-green leaves and starry lavender flowers and Anagallis tenella, our rare native bog pimpernel, covering a close green mat with delicate pink cups veined with red.

Messrs. Wood of Ashtead made a very pleasant decoration in cool primrose yellow, white and lavender, with dwarf evening primroses (Œnotheras riparia, Fraseri and missouriensis), white campanulas and a new nepeta, Paul Chandon, which received an award of merit. Nierembergia rivularis was shown covering itself with pearl white cups, which, oddly enough, have the scent of the river mud in which it grows by the La Plata. In our cooler climate it prefers a better drained situation.

Messrs. Reuthe showed a number of campanulas hiding shyly under the semi-tropical shrubs: Campanula Raddeana, beautiful in its deep violet, but inclined to be rather lank and awkward in habit; C. cæspitosa, a very small and charming form of C. pusilla, but not the true plant, which is probably not in cultivation and C. valdensis, dark purple with rather hoary foliage.

Messrs. Waterers showed some pleasant St. John's worts, Hypericum cuneatum, whose mahogany red buds contrast with its glaucous leaves and enhance the golden yellow of its blossoms; and H. olympicum citrinum, a good sulphur yellow form; Campanula turbinata grandiflora, whose flowers are really too large for the plant and look like inverted umbrellas.

In the cherry and soft fruit show, under the auspices of the Fruit and Vegetable Committee of the Kent Branch of the National Farmers' Union, the large numbers of exhibits of cherries gave evidence of the keen interest which growers take in the culture of this choice dessert fruit. A cherry and soft fruit show, such as this, provides opportunity for fruit farmers to discuss questions of mutual interest and does much to maintain a high standard.

The fruit was perfect in condition and excellent both in shape and quality. Cherries, gooseberries and black and red currants were exhibited. Several silver challenge cups were awarded, as well as many prizes. In Classes I and II the Norton Orchards, Limited, won first prizes for cherries, the varieties shown being Bedford Black and Waterloo. The Executors of Mr. W. R. Dixon secured the first prize for black cherries, and Mr. W. F. Wood a silver challenge cup for a basket of Napoleon, and also a first for a fine exhibit of Amber (Kent Bigarreau). The fruit of the last mentioned variety was especially good in shape and colour.

Messrs. G. H. Dean and Co., Limited, exhibited very fine cherries, gooseberries and black currants, for which they received some of the highest awards given. In white cherries they excelled particularly. For a red (sour) variety, Mr. E. B. Gascoyne surpassed the other exhibitors, and the Executors of Mr. W. R. Dixon took the honours for three distinct black cherries.

The gooseberries were enormous in size. A basket of Lancashire Lad won a first for Messrs. Wakeley Bros., and Mr. Sydney Wakeley was awarded a challenge cup for the yellow gooseberry Brighton Mammoth. In Class XIV, for any variety of red currant, Messrs. W. J. and F. O. Thomas received a challenge cup for Fay's Early Prolific, and excellent black currants were shown by Messrs. G. H. Dean and Co., Limited. Sir W. W. Berry was awarded the first prize for raspberries, his basket of Superlative

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being remarkably good in size, flavour and condition.

Among other exhibits were the following :

ALPINES.—Messrs. E. Dixon.

CARNATIONS AND PINKS.—Messrs. Allwood Bros., John R. Crowhurst, C. Englemann, J. Douglas and C. Herbert.

FRUIT.—C. H. Hooper, tables showing results of cherry pollination trials. Sir Charles Nall Cain, Bt., cherries and raspberries. Colonel B. T. Petre, new black currant.

HARDY PLANTS.—Messrs. T. Carlile, Chalk Hill Nurseries, K. and E. Hopkins, Kelway and Co., B. Ladham, M. Prichard, Rich and Co.. Stark and Sons, Limited, and Mrs. Martineau,

LAVENDER IN TUBS.—Messrs. Lucas and Hill, Limited.

LILIES.—Lieutenant-Colonel Messel.

ORCHIDS.—Messrs. J. T. Bolton, Sanders and Co., and H. T. Pitt.

ROSES.—Messrs. Chaplin Bros., W. Easlea and Sons, T. P. Edwards and J. H. Pemberton.

STOVE PLANTS.—Messrs. L. R. Russell and Co.

SWEET PEAS.—Messrs. S. Bide and Sons, Limited, A. Blandford and Messrs. Dobbie.

VIOLAS.—Mr. W. Yandell.

NEW AND RARE PLANTS.

AWARDS OF MERIT.

SALVIA DICHROA.—This is a half-hardy species, by some authorities considered the same as S. bicolor. The stems are from 2-3ft. high and are square, characteristic of the family. The leaves are ovate in shape and rather long. Numerous flowers are borne in racemes 1ft. or more in length. These are of a bright to pale blue in colour, with the middle lobe of the corolla white, providing a good contrast. It is rather a handsome plant, especially when given full play. Shown by the University Botanic Gardens, Cambridge.

HOYA BELLA.—A rather slender and bushy evergreen shrub 1-2ft. high, and of graceful and attractive habit. The leaves are rather thick and oval in shape. The more or less waxy-looking flowers are borne in umbels. The corolla is made up of five pure white lobes, while the crown consists of five violet, almost boat-shaped segments. As the flowers hang downwards and are hidden by the foliage, much of the beauty of this handsome little species is lost. Shown by Messrs. Russell, Limited, Richmond.

PISTORINIA INTERMEDIA.—This representative, probably more commonly known as cotyledon, of the crassula family is a small succulent herb with more or less of an erect habit, about 9ins. to 1ft. high. The leaves and also the stems are thick and fleshy. The numerous flowers are carried erect in terminal cymes. These are of a dull yellow in colour, with five spreading rather ornate petals. Down the centre of each petal runs a dark crimson dotted line quite characteristic. Shown by Mr. L. Johnston, Hidcote Manor, Campden, Gloucestershire.

HEMEROCALLIS RADIANT.—A tall handsome variety carrying large flowers of a pure shade of golden orange which does not shade away into lighter tones in the throat. The perianth segments were also of good substance with some character about them. Each flower is about 3ins. long and when fully open 2½ins. across. The stems are stiff and erect. Shown by Mr. G. Yeld, Gerrards Cross.

NEPETA PAUL CHANDON.—This is a decorative variety about 18ins. high, carrying numerous two-lipped lavender blue flowers borne on stiff and erect stems. The foliage is light green and provides a good background for the flowers. Shown by Mr. F. G. Wood, Ashtead.

ROSE DAINTY BESS.—The praises of this fine single hybrid tea variety were fully sung in our report of the Rose Show at Regent's Park a fortnight ago. The large single flowers are composed of crinkled and waved petals of a fine shade of delicate pink which is deeper on the reverse side. Shown by Mr. W. E. B. Archer, Ashford.

ORCHIDS.

DIPLOMERIS HIRSUTA.—A native of Sikkim, in the valley of the Teesta, where it is found on sandstone rocks at elevations of about 1,000ft. to 1,400ft. Leaf solitary, bearing stiff, scattered hairs on both surfaces. Flowers pure white, nearly 2ins. long and 1½ins. across. Award of merit. Shown by Messrs. Sanders, St. Albans.

ODONTIODA THIASA VAR. GOLDEN GODDESS.—A finely grown plant with over thirty-two flowers, the segments boldly marked with bright red. Cultural commendation. Shown by Mr. H. T. Pitt, Rosslyn, Stamford Hill.

BRASSO-LÆLIO-CATTLEYA JUPITER VAR. MRS. STEWART.—Not only is this a noble flower, but the present example was brought to a fine state by skilful cultivation. The two spikes each bore a couple of immense flowers of mauve colour, the labellum purplish. Cultural commendation. Shown by Mr. J. J. Bolton, Claygate.

CORRESPONDENCE

VIBURNUMS CARLESII AND BITCHIUENSE.

SIR,—I am grateful to my friend Mr. Grove for setting me right about the relative merits of these two species. It was not, however, from plants of V. bitchiuense at Monreith that I formed the opinion which I ventured to express in favour of V. Carlesii. We have not, and never have had, any of the former species here, though we have, and greatly value, plenty of the latter. I wrote after examining the plants of V. bitchiuense at Kew, which happened to be in flower at the time, and I could detect no tint of rose on the unopened buds. Evidently I must lose no time in acquiring this species.

May I add an apology to Mr. Stern for having taken up his challenge without adequate knowledge of the subject. I lower my lance in salute to him.—HERBERT MAXWELL, *Monreith.*

A PRONOUNCING DICTIONARY.

SIR,—The *Gardeners' Chronicle* is quite right in making the "i" of "erica" long, and your correspondent Mr. C. G. O. Bond is in error in making it short and deriving the word from the Latin *ericius*, a hedgehog. Pliny's name "erica" is simply a transliteration of *ereike*, the Greek name for heath. The diphthong and the occurrence of the word in the Greek poets, *e.g.*, in Æschylus and Theocritus, prove the quantity of the "i" beyond any doubt. The Latin *ericius* is of entirely different derivation.—G. H. ENGLEHEART.

A CLIMBING ROSE.

SIR,—I think the rose described in THE GARDEN of July 4th by M. L., Bournemouth, is one I grow which came from Baveno (Lago Maggiore), where the gardens are full of it. I do not know the name, have never seen it elsewhere in England, and have not observed that it has any lemon verbena-like perfume. If M. L. gives me her address I will send her a specimen when it comes into bloom. It grows easily in Sussex. I have given it the protection of a wall and intend to try it more in the open when I have other plants. The two I have now are cuttings I struck from the original plant from Baveno.—DALLING.

ALUMINIUM SULPHATE AGAINST SLUGS.

SIR,—In discussing the use of sulphate of aluminium against slugs, some experiments reported in the Journal of the Royal Horticultural Society are referred to as the Wisley experiments. May I point out that these experiments were not made at Wisley, but were the work of the author of the paper, Mr. W. E. H. Hodson.—FRED. J. CHITTENDEN, *Director, R.H.S. Gardens, Wisley.*

A REMEDY FOR EARWIGS.

SIR,—Your correspondent, L. P., may clear his plants of earwigs by using a one in three thousand strength solution of perchloride of mercury, either as a spray or distributed through a watering can. It is made by dissolving 120 grains of mercury perchloride and the same weight of ammonium chloride in 5 gallons of water. Care needs to be exercised in the use of mercury perchloride, for the salt is very poisonous. But, while it is deadly to both earwigs and slugs, it is harmless to plants, used in the strength given.—WM. TAYLOR.

TRENCHING OF CLAY SOIL.

SIR,—I did not at first intend to add to my recent correspondence on the above subject, but after reading the note in your issue of the 23rd ult. I would like to say that, after Mr. Beckett's qualifications and elaborations, he and I are not so far divided in opinion as his original article would suggest.

If trenching can be done after the winter rains are over, and plenty of opening and enriching material can be added before a crop is planted or sown, I by all means second Mr. Beckett's "Trench, trench, trench."

But how many places at present permit of such work in spring—say March or April? Why, it takes most gardeners every minute to get ground decently wrought a single spit, along with the hundred and one other jobs which fall to be done at that season.

Most trenching and double digging is done in October and November, before the rains begin, as that is the only season the average gardener can find time for it.

Also, the necessary material for improving the sterile soil brought to the surface has a limit in most places, at least in my experience; hence my reason for advising caution.

Perhaps you will allow me to say that I am greatly surprised that so little interest seems to be taken in this, one of the most important of garden operations. I expected that many gardeners would have given their experience on one side or the other.—J. H.

CRINODENDRON HOOKERI.

SIR,—Taking the above name as given at Chelsea, I would like to mention some of the names which have been given to it by botanists and others. Besides the above spelling, it has also been rendered as C. Hookerianum. Only two species seem to be known, belonging to the lime tree family (Tiliaceæ), namely, Tricuspidaria lanceolata and T. dependens. The former is the name adopted as the oldest or correct one for the plant under notice at Kew. Tricuspidaria refers to three small points of the flower, But these points are conspicuous only in T. dependens, which would seem to have been the first species described: and a pale-flowered inconspicuous one it is by comparison with its more august relative. I have known T. dependens to be taken for the better plant in a garden, until it flowered and annoyed its owner.—J. F.

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THE SALTAIRE SHOW

THE nineteenth annual show of the Saltaire, Shipley and District Rose Society was held on July 14th and 15th. at Roberts Park, Saltaire, in delightful weather, and it attracted a large attendance. Three large marquees were filled with choice exhibits, among which roses, sweet peas, carnations, pansies and violas, and rock gardens, predominated. The marquees were spacious and remarkably cool, considering the summer-like conditions, and everything bore a neat appearance. The public were able to see all the exhibits in perfect comfort.

One marquee was almost exclusively devoted to the rock exhibits. Messrs. Mackenzie and Sons of Ilkley were awarded two large gold medals for a charming rock garden which contained a varied display of alpines and shrubs and which was entered through a rustic arch. In the centre there was a streamlet crossed by a miniature rustic bridge.

Messrs. Conway's of Halifax had a rock garden flanked by a neat formal garden, surrounded by a border of pink verbenas and central beds containing polyantha roses, marguerites and hydrangeas.

Other good rock exhibits were those of Messrs. Kershaw's of Keighley (in which we noticed a fine crazy path), Messrs. Rashley and Co. of Mytholmroyd, and Mr. Gardner. In the latter exhibit there was a miniature tennis court and a floral surround.

In another marquee Mr. Frederick G. Wood, Mr. R. V. Roger and Messrs. Maxwell and Beale all had interesting collections of alpines set out on tables; but the feature of this tent was a pretty Old English formal garden, constructed by Messrs. Backhouse's Nurseries, Limited, York. It was semicircular in form, with a curving, low wall, below which in the centre was a miniature statue of the god Pan. This original and neat exhibit deservedly won the President's large gold medal.

ROSES.

There were many fine trade exhibits, and the principal prize-winners were Messrs. Alex. Dickson and Sons, The Donard Nursery Company, Messrs. Bees, Limited, Mr. Elisha Hicks, Mr. Henry Drew and Mr. George Burch.

In Messrs. Dickson's stands we noticed the following varieties as being particularly good: Scarlet Glory, Shot Silk (exceptionally fine), Betty Uprichard, Lady Inchiquin, Dame Edith Helen, Richard E. West and Fred. J. Harrison.

The Donard Nursery Company had fine specimens of Margaret Dickson Hamill, Clara Curtis, J. G. Glassford and Marjorie Bulkeley.

Messrs. Bees, Limited, showed Ophelia, Golden Emblem, Mme. Herriot, Mrs. Henry Morse, Nellie Parker, The Queen Alexandra Rose, and Independence Day.

Mr. Hicks had some very fine blooms, and his best varieties were W. F. Dreer, Los Angeles, Lady Inchiquin, Golden Emblem, Clovelly, Johanna Bridge, Betty Uprichard, Argyle and Florence H. Veitch.

In the amateur classes Mr. Cuthbert Dixon of Sheffield was a prominent winner, and among the local amateurs Mr. Harold Mitchell of Bradford was awarded first prize in all the principal classes. Mr. W. A. Simpson-Hinchliffe won the prize for the premier bloom in the Show with a very fine specimen of Mrs. Foley Hobbs.

In Mr. Mitchell's stands, Mrs. Foley Hobbs, Mrs. Henry Bowles, Edel and Caroline Testout were specially good; and in the other amateur exhibits, Willowmere, Lady Inchiquin, Mrs. C. Lamplough, Gladys Holland, Mrs. Henry Morse, Lady Ashtown and J. L. Mock were notable varieties.

Mr. G. C. Waud, in addition to a fine display of roses, also had some very fine carnations and sweet peas.

OTHER FEATURES.

It was said that there has never been a finer display of perpetual carnations seen in the district than the magnificent exhibit put up by Mr. Engelmann. It is doubtful if Mr. Engelmann has ever had his scarlets in finer colouring, and some of the varieties were positively dazzling. Tarzan, Laddie, Red Laddie, Saffron, Dainty and Spectrum were all outstanding kinds.

There were many fine vases of sweet peas in the competitive classes, and Sir Randolph Baker (gardener, Mr. A. E. Usher) secured the chief prizes. Some of his best vases were those of Picture, Tangerine, W. J. Unwin, Wembley, Austin Frederick and Powerscourt. In the local amateur classes, besides Mr. G. C. Waud, the exhibits of Mr. Stephen Shackleton were very good.

Pansies and violas, in spite of the drought, were well shown. Mr. A. W. Upton won first prize for a display of violas, in which the following varieties were especially good: Admiral Jellicoe, Mrs. Andrew Stevenson, Mrs. J. Ritchie, William Hattersley, Milton Jumbo and Annie Hamilton. Mr. J. Wood was awarded first prize for a neat table decoration of violas.

The pansies and violas staged by Mr. Herbert Bairstow were of high quality and secured for him all the premier prizes.

His stand of twenty-four violas included Admiral Jellicoe, Mrs. W. Hunter, Jenny Simpson, James Blair, Nancy Harrison, Annie Hamilton, Peggie Ramsey, William Barr, Edith Bastock and Mrs. J. McEwan. His twenty-four fancy pansies included Mrs. Andrew Frater (specially good), Argyle, Alex. Lister, Miss Nellie Thomson, A. J. Balfour and John Whiteford.

In the classes for six blooms (one variety only), Mr. Bairstow won first prizes with Betty Bishop, Malcolm Milner, Admiral Jellicoe and Annie Hamilton.

SWEET PEAS AT WESTMINSTER

UNDER the auspices of the National Sweet Pea Society, the annual exhibition of sweet peas was held at the R.H.S. Hall on Thursday and Friday last, July 16th and 17th. It is now twenty-five years since the inception of this Society and year by year a steady improvement has been recorded, till on this last occasion all previous shows were overshadowed. A high water mark of excellence was reached, which will be hard to surpass, if not to equal. It was probably the finest show of sweet peas which has ever been seen at Vincent Square and great credit is due to the Committee, especially the Secretary, Mr. A. C. Bartlett, whose untiring energy and enthusiasm has made this possible. Almost all the trade growers were represented, while in the amateurs, classes, the entries were numerous and the competition very keen.

TRADE CLASSES.

Among the trade growers, interest centred round the classes for the Bath and Eastbourne Cups, and the high standard and general excellence of the exhibits was most marked. In the Bath Cup Class, almost all our leading sweet pea firms were represented, and it fell to Messrs. Robert Bolton and Son of Halstead to carry off the Cup, along with a large gold medal. Their stand, although it appeared rather crowded, had a really fine display of colour, the shades of the blooms being greatly enhanced by the decorative trimmings of asparagus. It seems invidious to single out names, but those varieties which attracted our attention were Charming, Mrs. Tom Jones, Wizard, Supreme and Peggy, a novelty for 1926. The blooms were all in excellent condition considering that they were all grown out of doors without any protection or shading from the spring sunshine.

A large gold medal was awarded to Messrs. Sutton and Sons, Reading, who had a well arranged stand, in which three overhanging baskets, containing Dignity, Sunset and Hebe were conspicuous. The background consisted of four spray vases filled with Sutton's Giant White, Field Marshal (deep crimson), and the scarlet Pimpernel. Again the colour was rich and pure and the quality of the individual flowers excellent.

Mr. J. Stevenson of Wimborne staged a well balanced exhibit, in which the notable varieties La France, Cynthia, Diana and Hebe were employed to form a light toned background to the brighter and deeper shades of such sorts as Charming, Venus and Coraline. The high standard reflected great credit on the raiser in his cultivation, which was acknowledged by the award of a silver-gilt medal.

Messrs. Dobbie and Co. of Edinburgh, whose name is famous all the world over in connection with sweet peas, staged a most attractive display, consisting of a number of varieties, such as Grenadier, Sunset, Hawlmark Pink, all in the first quality of excellence. The shades of colour were good, while the size and quality of the blossoms were beyond reproach. The reputation which this Scottish firm has already established for themselves in connection with sweet peas should be greatly added to by this display, which received a large gold medal.

Another well set up exhibit was that arranged by Messrs. E. W. King and Co., Coggeshall, which was awarded a large gold medal. Such varieties as Pimpernel, with baskets of Patriot, Britannia, 2 L O and Seedling were included in the stand and all looked exceedingly handsome.

A gold medal was awarded to Messrs. Ireland and Hitchcock for their stand, which was composed of such sorts as Mauve Prince, Royal Scot, Lord Lascelles and Mascott's Ingman. All the varieties were in really fine condition considering the warm, dry weather.

Mr. A. Blandford, West Horsley, made use of the overhanging baskets, in which were arranged Valentine and Daisybud, both of almost a similar shade of blush pink. Other sorts included Austin Frederick Improved, Wild Rose and La France, the latter two showing up well against the darker tones of Warrior. A silver medal was awarded this exhibit.

In Messrs. Daniel's tastefully arranged stand such varieties as Picture, George Shawyer, Rosy Morn, Jack Cornwall V.C., were outstanding. The blooms were of good size and colour and fully deserved the silver medal awarded to their exhibitors.

In competition for the Eastbourne Cup, Messrs. R. Bolton and Sons again added to their already long list of successes by winning the Cup and a large gold medal with a most attractive and meritorious exhibit, which showed the merits of the individual varieties off to distinct advantage. The colour scheme was also to be commended. The spray vases of Royal Pink, Grenadier and Wizard used to overshadow the other varieties, were excellent, and their deeper tints were to some extent relieved by the clean, light shades of Ivory Picture and Matchless. Other sorts which were well shown were Gold Crest, Tangerine Improved, Blue Bird, Picture and Peggy.

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Messrs. Sutton once more employed overhanging baskets filled with Lucifer, Picture and The President Harding, in their exhibit in this class, which received a large gold medal. Huge spray vases of Mrs. T. Jones (of a good colour), Mammoth, Royal Scot and Powerscourt were also to the fore as a background to such sorts as George Shawyer, Hawlmark Pink and Celeste.

Gold medals were awarded to Messrs. Dobbie and to Messrs. Ireland and Hitchcock for their excellent displays, the former firm including really fine blooms of Miss California, Mrs. T. Jones, Picture, Ruby, Elegance and Charity, relieved to some measure by well placed vases of Constance Hinton: while the latter staged large vases of Matchless, Powerscourt and Wizard, along with many other well grown blooms.

Messrs. Carter and Co. of Raynes Park, although they did not receive an award, had a tastefully arranged exhibit in small baskets, such varieties as Royal Scot, Diana, La France, R. F. Felton and Hebe being represented.

AMATEURS' CLASSES.

Although the trade was well represented at the Show, yet the principal feature was the large number of amateurs who entered for the different classes, and such is to be highly commended. The Society exists principally for the amateur, to assist him in the raising and growing of sweet peas, and it is most gratifying to see the results of their efforts in the increasing number of amateurs who are coming forward every year to take a place in the competitive classes. Prizes cannot be given to all, and those who have gone away empty-handed must do better in the future. In the various classes the entries were numerous and the exhibits were of a high standard, leading to a very keen competition. The majority of the blooms shown were of good quality and colour and indicated that the amateurs were almost as highly skilled in the growing of the certain varieties as the raisers themselves.

The *Daily Mail* Challenge Cup went to Mr. T. W. Franks, Tonbridge (gardener, W. Humphrey), who, in his twelve vases of distinct varieties included Tom Sykes, Pimpernel, Rosy Morn, Wizard and Powerscourt, all in fine condition. In addition to the Cup, he was also made the recipient of £20 by Messrs. E. W. King, as he included three of their novelties in his exhibit. Major General R. L. Mullons, Colchester (gardener, T. Baines), was a close second, with such sorts as Wild Rose, Royal Sovereign and Tom Sykes, among others, while the third prize fell to Dr. G. Cole, Beeston, Notts, who staged Lord Lascelles, Matchless, Gloriosa and others.

The Sultan Cup was awarded to Lieutenant-Colonel Sir R. Baker (gardener, Mr. Usher), who showed, in his eighteen vases of distinct varieties, such sorts as Charming, Valentine, Royal Scot and Royal Sovereign, the quality of the blooms being excellent. Major Geoffrey Lubbock, Pangbourne, Berks. (gardener, J. B. Lowe), was second, with fine blooms, among which were Hawlmark Pink, Field Marshal, Jean Ireland and Mrs. Arnold Hitchcock.

In the class for six vases of distinct varieties, Mrs. V. M. Williamson, Canterbury (gardener, W. Langsdon), received the Cory Cup, the premier award for her excellent exhibit, which included fine blooms of Hebe, Charming, Royal Sovereign and Powerscourt. Mrs. Shirley Woolmer followed a close second, including Mrs. Tom Jones, which was judged as the best bunch in the Show, while Mr. W. Barrett, Bray, Co. Wicklow, was third with really good blooms of Elegance, Gladys and Annie Ireland, considering that they had been cut on the Tuesday and had with stood a fourteen hours journey.

Lieutenant-Colonel Sir R. Baker was successful in winning the gold medal of the Society for his collection of twelve vases of British raised varieties, while Lieutenant-Colonel H. Laurence Scott was a good second, with Mrs. Tom Jones, La France and Hebe among others.

Mrs. Williamson added to her triumphs by winning first prize in the class for three distinct colour varieties. Her winning three were Constance Hinton, Mrs. C. W. J. Unwin and Mascott's Helio. Mr. Arthur Hutton was second, while Mr. Allan Gibbs obtained the third prize.

The Monro Challenge Trophy, for the best twelve vases with not less than six varieties, raised or introduced by the exhibitor, went to Messrs. Thos. Cullen and Sons, Witham, who staged, among others, Pink Perfection, Blue Bird, Mermaid and Crusader, while Messrs. E. W. King, with 2 L O, Britannia and others, were second, and Mr. H. J. Damorum was third.

In the President's Class with three vases illustrating colour schemes, the first prize was awarded to Miss Russell, whose vases were most attractive. Mrs. F. W. Franks was second, and Mr. A. Johnson, third.

Messrs. E. W. King reversed the order of the things in the seedling class, when they were first with Britannia, Giant Mauve and Brenda, three varieties not yet in commerce, and Messrs. Thos. Cullen, were second.

The former firm were also successful in the class of one vase of a variety not yet in commerce. With 2LO they were first, with Messrs. Ireland and Hitchcock runners-up with Firefly.

In the raisers' classes, Mr. J. Stevenson was first with Charming, Coraline, Venus and Cynthia, with Messrs. Thos. Cullen second and Messrs. E. W. King third.

In the class for the E. W. King Cup, for which there were a large entry, Mrs. Arthur Hutton was a praiseworthy winner with blooms of Grenadier, Royal Sovereign and Geo. Shawyer. Sir Joseph Tichborne was second, with Captain R. B. Brassey and Miss Russell third and fourth respectively.

Still another cup, the Burpee Cup, was awarded to Sir R. Baker, when he was first with six varieties which have not been in commerce for more than one year. He included Miss California, Mammoth, Sunshine and Coraline. Mr. H. D. Tigwell was a worthy second.

In the District Classes, Mr. Allan Gibbs was a successful first for the Western Counties and South Wales, while Mr. T. W. Franks occupied a similar position in the Southern Class. Entries were poor in the Scottish and Irish Classes, and Mr. J. W. Jeffrey of Selkirk was first in the former and Mr. W. Barrett in the latter. The reverse was the case with the Midland Counties, where the entries were large, Captain R. B. Brassey being successful.

Few affiliated societies put up an exhibit for the challenge shield awarded for twelve distinct varieties, and this was won by the Pangbourne and District Gardeners' Association by a well set-up exhibit.

In the single bunch classes there were numerous entries and many varieties were shown. Miss Russell was the most successful in these classes, lifting eight first prizes.

In the special division for amateurs, Mr. F. T. Rogers won the Hawlmark Challenge Cup, while Mr. Arthur Leigh won a silver cup. Mr. Simon Richards was awarded *The Amateur Gardening* Challenge Cup, with such noteworthy varieties as Charming, Mascott's Purple and Mrs. A. Hitchcock. In the classes for small growers, Mr. H. W. Lewington received the cup for twelve distinct sorts, while the Walter Voss Challenge Cup went to Mr. J. Randall.

In the floral decoration classes, the standard might have been higher. Foliage was too much in evidence, while in many cases too much attention was given to the actual vases, rather than to the flowers themselves. The baskets, however, were tastefully arranged and the first prize went to Mrs. L. Fortescue.

There were a few other classes of which, unfortunately, through lack of space, we are unable to give an account.

MESSRS R. BOLTON'S EXHIBIT WHICH WAS AWARDED THE EASTBOURNE CUP.

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FLOWERS AT THE ROYAL SHOW

FROM a small beginning the horticultural section of the Royal Show has now become an important event. In consequence of the liberal prizes offered, the herbaceous section display excels anything ever seen in London, and with premiums amounting to £75, offered in three prizes, no other show, probably (and certainly not the premier horticultural society), can bring out such fine groups.

In the group of Messrs. Bees, which secured the highest award, delphiniums predominated. Cambria is a metallic blue, and Willie O'Breen a pale shade of blue. The yellow Verbascum vernale was very telling. In the group of Messrs. Artindale (Sheffield) that fine Eremurus Bungei was a good shade of yellow.

Iceland poppies, and especially Giant Orange, were bright in Messrs. Gibson's (Leeming Bar) fine display and the ever popular erigerons, which are sometimes called " Summer Michaelmas Daisies," were fine in Messrs. Harkness' group, also from Leeming Bar.

One of the most beautiful of herbaceous plants, the lovely blue Scabiosa caucasica, and its varieties, figured prominently in the exhibit from Messrs. Jarman and Co. (Chard).

Roses which are best for the garden are not always to be seen at a show, but a judicious selection of not always the largest and best formed could be made from Souv. de Georges Pernet, rose pink flushed with apricot red; Souv. de Claudius Pernet, bright yellow; Betty Uprichard, old rose with darker reverse to petals; Lady Inchiquin, a unique shade of orange vermilion; Los Angeles, salmon flushed with apricot orange; Etoile d'Holland, crimson, sweetly perfumed; and Clarice Goodacre, a dainty biscuit white. These were displayed by Messrs. Bees, Limited, Liverpool; Thos. Robinson, Nottingham; W. and J. Brown, Peterborough; A. J. and C. Allen, Norwich.

Shot Silk, a pink flushed with a scarcely perceptible shade of yellow, was the best in Messrs. Alex. Dickson's group. The combination of a fine garden rose with the form of exhibition standard is found in Lord Charlemont, a deep crimson, shown in Messrs. B. R. Cant's group.

CARNATIONS.—No show at any time of the year is now without carnations, and just at this date the old border types are at their best. Border Yellow, Bookham Rose and Salmon Clove, were three of the best seen in Mr. Horace Lakeman's collection from Thornton Heath. A miniature garden on the ground contained Messrs. Allwood Bros. Dianthus Allwoodii from Haywards Heath; they also had Edward Allwood massed in a telling way, included in their collection of perpetuals. The crimson carnation, Topsy, was fine in Mr. C. Engelmann's display from Saffron Walden.

FORMAL GARDENS.—Much anent the arrangement of a garden may be learnt by a visit to one of these shows. Thus, an ideal crazy paving surrounding a cool pool was arranged by Mr. C. H. Taudevin of Wollaston, Cheshire, and a still more extensive lay-out by Messrs. Kent and Brydon from Darlington included a terrace walk with large water garden flanked with bamboos, lilies, delphiniums and other herbaceous plants.

Smaller rock gardens were arranged by Messrs. Maxwell and Beale, and Mr. R. V. Rogers. An instructive garden was made by the Aldersley College near Chester. Those who are fond of a dainty flower in this class will find the miniature mauve Campanula linifolia, which was in the exhibit of Messrs. Bowell and Skarratt, a charming addition.

GROUPS OF PLANTS.—The masterly skill of arrangement employed by Messrs. Cypher, W. Holmes and T. Petch, were alone worth a visit to the show to see. The combination of orchids and foliage plants was made to give the maximum light effect and show combined.

Sweet peas with perfume are mostly found among mauve and duller shades, but the orange salmon Gold Crest in Mr. Robert Bolton's group, the reddish salmon Royal Sovereign in Mr. E. W. King's group, and the soft mauve Powerscourt in Mr. J. Stevens exhibit were outstanding. The mauvy blue variety " Orchid " was conspicuous in Messrs. Dobbie's group.

Some gorgeous begonias came from Messrs. Blackmore and Langdon. A good selection would be Nurse Cavell, a pure white; Mrs. Richard Caulfield, rich salmony rose; Mabel Langdon, pale salmon; Sir Henry Wilson, scarlet; Rayon d'Or, orange.

Strawberry Waterloo, nearly purple, with Omega, a new late variety, were included in the group from Messrs. Laxton Bros.

MISCELLANEOUS EXHIBITS.—Messrs. Suttons had a tent all to themselves, with patches of various types of grasses for golf courses. Inside the main tent sweet peas, larkspurs and Clerodendron fallax were well displayed.

The fragrant Phlox Etna, a reddish salmon, pentstemons, and the brilliant dwarf Dahlia Coltness Gem, were sent from Hawick by Mr. John Forbes. From The Donard Nursery, Newcastle (Ireland), some choice shrubs included the brilliant Tricuspidaria lanceolata, and a much neglected, but easily grown, shrub, Spartium junceum, popularly known as Spanish broom.

A further tent, away from the rest, housed the specialities of Messrs. Dicksons, Chester. Roses and herbaceous plants, fruit trees and floral work were a varied display from a firm noted for the great variety of its products.

A fine strain of streptocarpus and gloxinias, arranged with caladiums, crotons, came from Messrs. John Peed and Sons.

A collection of the more rare herbaceous plants, as well as such showy subjects as kniphofias, phlox, campanulas, etc., were sent from Christchurch by Messrs. Maurice Pritchard and Sons.

One naturally associates sweet peas with the name of Henry Eckford, Wem. His flowers were of their usual fine standard and included some fragrant varieties, which the public appreciates more to-day than ever.

THE WINDSOR ROSE EXHIBITION

ON July 11th the Windsor Rose Society held its Annual Show on the slopes of Windsor Castle, so thoughtfully and considerately thrown open by His Majesty. In past years the Show was usually held on the last Saturday in June, but for good and sufficient reasons the Committee decided upon a later date this year, and gained thereby in that they had the finest Show for many years, and the perfection of the arrangements represented an enormous amount of hard work by the hon. secretary, Mr. J. Harding.

The chief attraction is the King's Cup, which is offered annually for the best forty-eight distinct roses and is open to all England. In the past it has been won four times each by Messrs. B. R. Cant and Sons and by Messrs. D. Prior and Son, and twice by Messrs. Alex. Dickson and Sons. This year's winner proved to be Messrs. Frank Cant and Co., who staged an excellent collection of such sorts as Mrs. Wallace H. Rowe, Mrs. Foley Hobbs, Mrs. Elisha Hicks, Dean Hole, Bessie Brown and Premier. Messrs. B. R. Cant and Sons were a good second in the champion class, and they had fine blooms of Mrs. Henry Bowles, Mrs. G. Marriott, Bessie Chaplin and George Dickson; while Messrs. D. Prior and Son were third.

Mr. George Prince was the most successful exhibitor of eighteen tea or noisette blooms, and his very fine collection included fragrant specimens of W. R. Smith, Maman Cochet, White Maman Cochet, Mrs. Foley Hobbs, Lady Plymouth and Mrs. Hubert Taylor. In the second prize exhibit of Mr. E. J. Hicks Maman Cochet, W. R. Smith and Mrs. Foley Hobbs were particularly good.

Competition was very strong in the class for trios of twelve varieties, and Messrs. B. R. Cant and Sons had a splendid exhibit of such sorts as Captain Kilbee Stuart, H. V. Machin, George Dickson and Mrs. George Norwood. Messrs. D. Prior and Son were second, and they included Venus, Mrs. R. D. McClure, Martha Drew and Mrs. G. Marriott of great excellence.

The best twelve blooms of any hybrid perpetual or hybrid tea rose were magnificent blooms of Mrs. Elisha Hicks staged by Messrs. F. Cant and Co.; while Mr. C. Gregory was second with a splendid dozen of Candeur Lyonnaise. The similar exhibits of any tea or noisette rose were also of high quality, and Mr. George Prince was the first prize winner, with Mr. E. J. Hicks second and Messrs. D. Prior and Son third, all with Mrs. Foley Hobbs. Mr. George Prince was also the most successful exhibitor of twelve blooms each of a crimson and a white rose in two baskets.

The best of the four exhibits of twelve bunches of decorative roses was set up by Mr. Henry Street, who had lovely vases of Lulu, Sunstar, Ophelia and Golden Emblem. Messrs. A. Warner and Son were second with Los Angeles, Isobel, Ophelia and similar varieties.

AMATEURS' CLASSES.

Equal in importance with the King's Cup to the trade is the Windsor Challenge Cup to amateur rosarians. It is for open competition, and this year the greatly desired distinction of winning the honour fell to Dr. R. C. Turnbull, Colchester, who had among his superb twenty-four blooms the best rose in the whole of the Show. This was a delightful specimen of Mrs. C. Lamplough. He also showed George Dickson, Mrs. H. R. Darlington, Cleveland, Mrs. George Marriott and F. N. Thompson of great merit. Mr. F. H. Fieldgate, also of Colchester, was a worthy second in this important class, and his board of fine varieties included Louise Crette, Her Majesty, Avoca and Coronation. Dr. Turnbull also won the first prize for trios of six varieties with a superb collection, and Mr. Fieldgate was again a good second. Dr. Turnbull added to his triumphs by showing the finest six tea roses, and he included lovely blooms of Mrs. Campbell Hall, Maman Cochet and White Maman Cochet; while Mrs. Henry Balfour was second.

In the local classes, Mr. J. Tiller had the best collection of roses, and he included Lady Inchiquin, Mrs. G. Marriott and George Dickson of great excellence.

The splendid quality of the many exhibits of sweet peas augured well for the success of the forthcoming annual show of the National Sweet Pea Society. The Prince of Wales' Cup was again won by Sir Randolf

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Baker, Blandford, with fifteen magnificent vases of Wizard, Wild Rose, Powerscourt, Warrior, Constance Hinton and Mrs. Arnold Hitchcock. Major C. B. Krabbe, Calcot, Grange, Reading, was a good second in this large class, and he showed beautiful vases of Bunty, Wizard, Hebe and Purple Perfection. Sir R. Baker also showed the best twelve bunches in the open amateurs' classes, and with six equally fine vases won the Edward Webb and Sons' prize for sweet peas.

The trade exhibits were a magnificent feature of the Show, and Mr. Elisha J. Hicks again won the Lady Peter Cup with a splendid exhibit of roses. Messrs. A. Bide and Sons had sweet peas; Mr. Charles Turner and Mr. J. C. Allgrove showed delightful groups of border flowers; Mr. J. H. Pemberton, Messrs. Brinkman Brothers, Mr. G. Gregory and Mr. C. H. Murrell staged roses; while Mr. W. Yandell set up one of the largest collections of lovely violas ever seen.

BORDER CARNATIONS

THE two shows held by the National Carnation and Picotee Society during the last week were most successful owing to the untiring energy of the committee. On July 14th some fine blooms were exhibited at the Royal Horticultural Society's Hall; and on July 16th an interesting show was held in the Carpenters' Hall. The latter is the first show which this Society has held in the City during the forty-seven years of its existence. After a few words spoken by the President, the show was opened by the Lady Mayoress, who very kindly presented the challenge cups won at the previous show. The representative of Mr. James Douglas of Bookham fame received the Cartwright Challenge Cup; Miss Shiffner of Lewes the Edmund Charrington Challenge Cup; and Mr. H. A. Knapton of Orpington the Martin Smith Memorial Cup.

The quality of the blooms exhibited was excellent, the colours clear and bright and the foliage healthy. The selfs were not so good as many of the fancies, which were truly of outstanding merit. Among the amateurs who carried off the greatest number of prizes were Miss Shiffner, Mr. E. Charrington of Limpsfield, Mr. James Fairlie of Acton, Mr. H. A. Knapton, Mr. F. W. Seymour of Finchley and Mr. S. Williams of Chipstead.

In the first division (open), Messrs. Lowe and Gibson deserve special mention: they were awarded a first in every class. Ganymede was the best white ground picotee, Togo the best yellow ground picotee, and Steerforth the premier clove-scented carnation. Fine specimens of Lieut. Shackleton, Prospero and May Murray were shown by this firm. Messrs. Torrance and Hopkins also had some good carnations in this division, including David Herbert and Paladin. In the amateur classes, Mr. F. H. Seymour had a first prize exhibit, and of the three fancies Paladin was superior in shape and quality. Mr. E. Charrington showed St. Claire Amos, and, near by, Mr. F. H. Seymour had some beautiful blooms of that charming orange yellow variety, Elizabeth Shiffner, and the fragrant Burgundy clove. Miss Shiffner, one of the most successful exhibitors of the Society for some years, took a first prize for the pale cerise pink, Mrs. R. P. Smith.

In the third division, in which only members who grow fewer than 300 plants in pots were allowed to exhibit, Mr. R. S. Bowra of Golders Green won two first prizes, Bookham Rose, Border Yellow and Highland Mary being the best varieties which he exhibited. In Class 21, Mr. H. A. Knapton showed Santa Claus, a yellow ground picotee with a narrow edging of purple. A vase of three dissimilar self varieties and another of three blooms of clove-scented varieties won prizes for Mr. S. Williams. Mr. H. A. Knapton was particularly successful in this third division.

Blooms from plants grown and flowered in the open border were exhibited in the fourth division. Primrose Dame and Yvonne Thomas, Lieut. Shackleton and Highland Mary, shown by Mr. F. W. Seymour, were awarded first prizes. Mr. H. Spicer of Hitchin had some lovely flowers of Steerforth, and Mr. G. D. Murray of Worcester Park won a first prize for a seedling carnation.

The three trade exhibits were staged by Messrs. Allwood Brothers, Mr. James Douglas and Messrs. Lowe and Gibson. Many of the old varieties were seen on these stands. Mr. James Douglas had a large collection of new and old varieties, including Kelso, Lieut. Shackleton, M. F. W. Seymour and Elbor. The last two varieties gained first-class certificates on July 14th. Messrs. Lowe and Gibson had many good fancies and some excellent novelties which should soon become very popular and were well worth taking note of. Most noticeable of the varieties from among the whole exhibit were Viceroy, Mr. Edmund Charrington, Myrtle Pettigrew, Joan Lowe and Dr. Raymond Crawford.

OBITUARY

MR. E. CHARLES BUXTON.

IT is with the deepest regret that we have to announce the death of Mr. E. Charles Buxton of Coed Derw, Bettws-y-Coed. Though he had attained the ripe age of eighty-seven, he was still working in his beautiful garden when he was struck by the intense heat, passing peacefully away a few days later, *i.e.*, on the 11th inst. Though he was not a prominent public figure in horticultural activities, Mr. Buxton was widely known, large numbers of people at one time or another having visited his wonderful garden. He was, moreover, such a voluminous letter writer and frequent contributor to the garden press on matters pertaining to most phases of horticulture, that few men of his generation could claim to have enjoyed a more varied and extensive circle of friendship.

To the average gardener of to-day and to generations to come, the memory of "E. C. B." will be kept alive by the lovely clear blue form of Geranium Wallichianum, by Thymus serpyllum aureum, the lemon yellow Anthemis tinctoria, the very dwarf Aster dumosus and a distinct form of Lychnis viscaria. But to these and other excellent plants which bear his name one might add many which, if they did not originate in the Coed Derw gardens, have been treasured and saved from oblivion by their devoted owner. Among the former is that delightful little unnamed white geranium (not the albino Herb-Robert), Dianthus Woolley Dod, Veronica peduncularis and Rhododendron cheiranthifolia. The beautiful pure white Lamium Orvala alba was one of Mr. Buxton's latest introductions, and there is no doubt that the fine form of Cotoneaster horizontalis, with perfectly flat, prostrate branches and practically identical with that now listed as C. h. var perpusilla, appeared as a seedling at Coed Derw before the latter variety was sent in from Tibet. Another plant of the highest merit which first saw the light at Bettws-y-Coed is a particularly good form of Sedum spathulifolium, with blood crimson leaves.

If the passing of Mr. E. Charles Buxton means that the gardening world is the poorer for the loss of one of that distinguished band of worthies which have linked the days of fifty and more years ago with our own, one also craves the honour of paying a tribute to the memory of one who was, above all else, a grand old English gentleman of a type that is fast vanishing from among us.

Temporary Trial Ground.—The N. of E. Horticultural Society has been granted the use of a plot of land, one and a half acres in extent, situated on the Harlow Moor, at Harrogate, by the municipal authorities, at a rental of £2 per annum. It is intended to use the land as a temporary rose trial ground. Adjacent to the pine woods and a little west of the reservoir, this land is peculiarly adapted for rose culture. The Hon. Secretary of the North of England Horticultural Society, who has done yeoman work on behalf of the Society in the north, is to be heartily congratulated on the fruition of this scheme, which has been under consideration for many months.

Rose Trials at Wisley.—The first meeting this season of the Judging Committee appointed by the R.H.S. to review and adjudicate upon the roses under test at Wisley, took place on Saturday June 27th, when thirty varieties, then in full bloom, were examined and pointed. The Committee's awards are based upon points given for hardiness, habit, foliage, freedom of blooming and its duration, colour, shape, fragrance and lasting properties. The first-class awards given last year by the Committee to Hawlmark Crimson, Betty Uprichard, Christine, Red Letter Day and Mrs. Wemyss Quin, were in all cases again confirmed by their inspection on this visit. Further meetings of the Committee have been arranged during the blooming season. The rose garden is situated about a mile from the main entrance to Wisley Gardens, and it is well worth a visit by all lovers of the rose, and, indeed, by everyone who has a genuine interest in a garden.

Trials at Wisley.—The Royal Horticultural Society will carry out trials of nerines and lachenalias in their gardens at Wisley during the coming winter. Raisers and growers are invited to send three bulbs of each of their varieties to The Director, R.H.S. Gardens, Wisley, Ripley, Surrey, so as to reach him by Friday, July 31st. He will be pleased to send the necessary entry forms on request. A trial of winter spinach will take place at Wisley during the coming winter. One packet of each variety should be sent, to reach The Director (from whom the necessary entry forms may be obtained), R.H.S. Gardens, Wisley, Ripley, Surrey, by Saturday, August 29th.

PUBLICATIONS RECEIVED.

"The Gardener's Calendar," a garden guide for every day of the year, by T. Geoffrey Henslow. (Published by Dean and Son, Limited, 29, King Street, Covent Garden, W.C.2., price 2s. 6d.) A practical little book which permits of notes recording work done day by day, and which will thus form a permanent record.

CATALOGUES RECEIVED.

Messrs. Sutton and Sons, Reading.—Seeds for Summer and Autumn Sowing.

Messrs. Cooper and Nephews, Limited; and Messrs. McDougall and Robertson, Limited.—A Spraying Guide for Insect and Fungus Pests.

Messrs. Austin and McAslan, Mitchell Street, Glasgow.—A List of Flower Show Fixtures for 1925. This list will be sent free to any of our readers who make application, and will be found most useful.

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SIMPLE GARDENING

WEEDS, SEEDS AND SEEDLINGS.

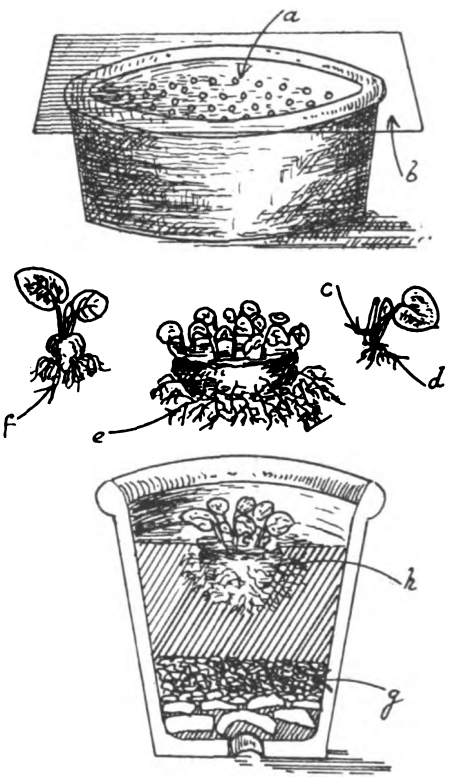
DURING the whole of the month of June it was possible to keep the garden free from weeds without much effort. I say it was possible, but, unfortunately, only a few owners of gardens took advantage of the long, dry spell of weather in this way, judging from the number of gardens I have lately inspected. The weeds in the borders, in the majority of cases, were small, but they seeded in this small state and laid the foundation for a fine crop of seedling weeds which will cause trouble very soon if the Dutch hoe is not freely used. Being small, the weeds in June were not noticed particularly, only in cases where the gardener is given to close observation. Not only does the free use of the hoe kill the young weeds wholesale, but a mulch is also created which breaks the surface crust and lets in air immediately and prevents undue evaporation of moisture from the lower soil. This conservation of moisture induces the roots of plants to penetrate deeper in search of it, which is much better than attempting to bring them to the surface by surface applications of water. In addition to the small, there are large weeds to be dealt with; these will be found in shrubberies, among bush and other fruit trees, in the rows of beans and peas, and even in the cabbage and cauliflower quarters. Hoeing is rarely beneficial in such places; hand-weeding is, if the offenders, when pulled up, are duly destroyed in the smother fire. If they are allowed to lie on the ground, many of them, especially groundsel, will mature seeds there.

LETTUCE AND ENDIVE FOR THE WINTER.

These two salad plants are of great value during a season when green salading plants are scarce. In the ordinary way both are easily grown, but at this season they need a little extra attention. If the weather is dry, the seeds for the autumn supply of both lettuce and endive should be sown in drills where the plants are to grow to usable size, and so avoid the work of transplanting and the check to growth. All plants which bleed freely at the roots when the latter are mutilated receive a serious check, and the result, in part, is apparent in the premature "bolting" to seed which, approximately, causes a loss of 15 per cent. in each batch so transplanted. Seeds of these plants are cheap and there are many of them in the smallest packet. It is well worth while spending a few pence more and having a larger packet so that seeds may be sown fairly thickly in the drills. The latter should be shallow and the seeds in them very lightly covered with fine soil. If the ground is almost dust-dry, pour water in the drills before the seeds are sown, but do not water after they are covered no matter how dry the soil may be. Germination will be rapid and sure, and at an early stage of growth the plants should be thinned out to about 8ins. apart in the case of lettuce and 10ins. in that of endive. For this autumn crop the soil should be rich, but for the crop that is to remain almost throughout the winter a soil of medium richness will be best.

CYCLAMENS.

These are ideal flowers for the amateur's greenhouse, and are economical plants to grow as they do not require much artificial heat during the winter months, and not any from spring to autumn. It is a good plan to make a sowing of seeds late in July or during the month of August where the means for artificial heating are limited, and in early September where unlimited heat is available. As these plants like cool conditions at this season, a cool place in a greenhouse or frame—the latter for preference—should be selected. Pans or pots are better than boxes for both seeds and



young plants. Light turfy loam, peat and leaf-soil, in equal parts, form a suitable compost, with a small proportion of rotted manure for the plants when the latter grow larger and near the final potting stage. Do not use manure for the seed pans. Thoroughly drain the pots or pans with clean potsherds; make the soil level, and dibble in the seeds singly 1in. apart, as shown at *a*, afterwards covering the pan with glass, *b*. Wait patiently for the seeds to germinate, as they are slow to do so. Keep the soil in an even state of moisture for seedlings and all plants after new growth begins. Old corms, now growing again, should not have any stalks, *c*, removed forcibly, as by doing this the new leaf and crown, *d*, may be pulled up; cut off such stems. Take care of the new roots of old, *e*, and young, *f*, when repotting. Pot corms as shown, providing sound drainage, *g*, and keep the crown of the corm, *h*, well up in the compost.

OUTDOOR OR BORDER CHRYSANTHEMUMS AND PLANTS FOR LIFTING.

The earliest varieties begin flowering in July, then a representative collection will provide flowers till November. The later ones receive more moisture and, moreover, flower during a cooler part of the year. For these reasons we should treat our earliest sorts more generously as regards liquid foods from the end of July to the middle of September, and so encourage a more robust growth. It is the general appearance of the plants now that should be our guide as to the amount of feeding advisable. If the stems are thin and hard, the lower leaves shrivelling and those about them turning yellow, then we should thoroughly saturate the soil with clear water and, in a few hours' time, apply weak doses of liquid manure liberally at least once a week. If this treatment be followed for one month, the result will be a fine batch of plants bearing masses of flowers. In some districts leaf-soil is plentiful, and if it is well rotted a surface mulch should be applied, as it will conserve moisture and have a neat appearance. Disbudding should be the rule where a restriction of the number of flowers on a plant will be an improvement; but disbudding should be very carefully done. Plants now growing in an open border, and which are to be lifted and transplanted under glass for flowering to form a succession to those in the borders should be neatly staked out to ensure firm, well ripened wood and leaves. Judicious watering and feeding must be the rule. These few details should be attended to now, as they are important; unripe wood will not bear nice flowers late under glass.

PREPARE NOW FOR THE AUTUMN GREENHOUSE DISPLAY.

Those who wish to be successful in maintaining a display of flowers in the greenhouse or conservatory throughout the year must look well ahead and make the necessary preparations. Most of the plants for the purpose we have in view now are, at the present time, growing in the open air or in cold frames. Berried solanums, Solanum capsicastrum and the scarlet-flowered salvias, coupled with the general favourites, zonal pelargoniums, are all in cool quarters outside, and should be cared for daily. Flower-stems should be removed before the blooms show colour, however eager one may be to see the different colours and shades. Certain shoots will grow longer than the majority; they must be stopped, and all plants should be so treated that the stems will be short-jointed and firm, then such will retain their normal condition in the duller days under glass. The zonals will not require much feeding, but the solanums and salvias should be liberally fed with weak and clear doses of liquid manure and soot water. The colour of the berries will be richer in consequence.

GEORGE GARNER.

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SPRING-FLOWERING CROCUSES

BY H. A. GREATOREX.

WITHIN THE NEXT FEW WEEKS, BULB CATALOGUES WILL BE SCANNED AND VARIETIES SELECTED TO ADORN THE GARDEN NEXT SPRING. THE TINY BUT GRACEFUL CROCUSES CRAVE THEIR FULL SHARE OF ATTENTION AND A NUMBER OF THE SPECIES MENTIONED IN THIS ARTICLE SHOULD BE TRIED.

THE same kind of post-war confusion fell upon the winter and spring-flowering crocuses offered by the trade as afflicted those that flower in the autumn. There was the same disposition to confuse the identities of certain closely allied forms, the same inclination to send one common species —Tomasinianus, in this case—for almost anything that was ordered, the same evidence of mixed and impure stocks, and lastly, the same tendency towards improvement, till to-day, with quite a small number of exceptions, all the kinds offered may be trusted to be true to their respective names.

One of the first of the crocuses to brighten the short days of the New Year is Imperati. I have found this listed in three forms: the type, albus and Maw's No. 1. What the latter should be like I do not know. What I have actually received under this name is the Dutch monophyllous form. I have not seen it listed since 1920, nor have I received it since that year, though I have seen it from a Dutch source in a neighbouring garden. Not only does it fail to produce seed with me, but in five years it has formed scarcely any off-sets.

In 1920 this same Dutch form was sent to me when I ordered the type. But since that year an order for the type has always produced an interestingly varied assortment of the typical diphyllous forms—some plain, some lightly and some the heavily feathered, most with the exterior buff of a greyish drab tint, but a few with the buff of a richer yellow hue. The only white form I have so far got is the one in which the inner segments are faintly tinted with lilac, and the outer striped on a yellow buff ground to a slight but varying degree, with pale, rather muddy lilac.

Five other members of the Imperati group are listed. They call for small comment. Suaveolens does not seem to be obtainable yet. At any rate, what I always get for it is Tomasinianus. Corsicus, minimus and etruscus may be quite relied upon, though there is a richly feathered form of etruscus, supplied by Messrs. Barr under the varietal name superbus which is so extraordinarily like corsicus in appearance and so very unlike the plain forms sent under the type name, that one may well be excused for thinking that a mistake has been made. Apart from the difference in the corm tunics, I find the two species easily separated when in flower, by the fact that in etruscus, as I receive it, the throat is bearded, and in corsicus, glabrous. All the individuals of corsicus sent me by Messrs. Barr in three separate years have identical featherings. In minimus, on the other hand, it is difficult to find two alike. The two species are easily separated by their proper spathes, diphyllous in minimus, and monophyllous in corsicus. Minimus has the smaller and prettier flower. Finally versicolor in two forms, one with a lilac ground, is true enough.

ONE OF THE FIRST SPECIES TO RAISE ITS HEAD IN EARLY SPRING, C. IMPERATI.

C. SIEBERI DELICATELY TINTED BUT A ROBUST GROWER.

The spring-flowering members of the annulate group are represented in present-day lists by three species, biflorus, chrysanthus and ærius. Five years ago the only form of chrysanthus I succeeded in getting was the variety fusco-tinctus. Fusco-lineatus was also listed, but in place of it I received a small, dull form of speciosus. It has since dropped out of the lists. Fusco-tinctus is a pleasing crocus. Its flowers are small, but the bright golden yellow of its interior gains an added richness from the backing of the evenly stippled brown of the outsides of the outer segments, and contrasts brilliantly with the black of the anthers. Last year Messrs. Barr offered several varieties of chrysanthus, some white, some yellow. Their chrysanthus pallidus is not the form described by Mr. Bowles and figured by Moon in the second volume of "Flora and Sylva." It has a fine globular blossom, but is of a medium yellow colour with some obscure greyish featherings, and no sign of black barbs to its anthers. "Pallidu feathered" is very different. It has smaller flowers with more pointed segments, with a varying amount of brownish feathering on a pale sulphur ground, some paler than others, and some with and some without black barbs to the anthers. It is an exceedingly pretty crocus. A rather curious form is "Quaintness," yellow within and with the exterior evenly washed over with reddish brown, through which yellow brush marks show. Only two feathered white forms have reached me, Mr. Bowles' "Snow Bunting," a pretty flower with only slight featherings and black barbs to the anthers; and a chamlijah form which, although it lacks the black barbs, has its featherings, so like those of Mr. Bowles' seedling "Bullfinch," that there can be little doubt of its identity.

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The large form of biflorus, known as the Scotch crocus, is quite true. The same can be said of the variety Weldenii, which embraces a number of forms from pure white ones to those which have the rich purple exterior of the Alexanderi type. Some are small and of a poor, ragged shape; but the best coloured specimens have fine large globose flowers. Biflorus Barrii, as I get it, is mixed. Most of the corms produce long, cylindrical buds, very heavily feathered. These flower very late—not until the Scotch crocus has finished—and are, I have little doubt, the real Barrii. With them are other corms producing much narrower leaves and short, ovate buds, with three lightly feathered stripes, flowering a little earlier. The same mixture comes to me as biflorus pusillus. Lastly, the beautiful ærius and its variety "celeste" are expensive, but quite true to name.

The rather bewildering group of little yellow crocuses related to aureus have been too much for British nurserymen. The earliest of them, vitellinus, is listed, but when I order it I get an unstriped form of graveolens. There is no doubt of this, the pale yellow of the exterior and the extraordinarily evil smell being unmistakable. Mr. Bowles tells me that Messrs. Van Tubergen have the true vitellinus. Graveolens itself is listed, and is true enough. Those which I receive are striped more or less with brown. It has pretty little starry flowers, and would be very desirable, if it were not for its dreadful smell.

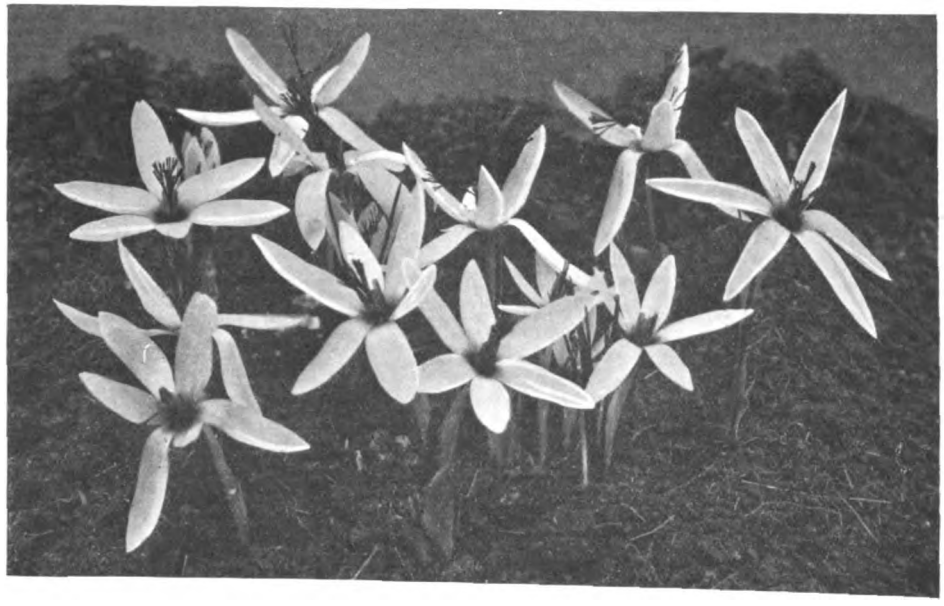
Two other small yellow crocuses listed are Olivieri and candidus subflavus. The latter is true to name. The former, however, as sent out by Messrs. Barr, has relatively such narrow leaves, and its throat and perianth tube so stained with purplish grey, that I long suspected it to be Suterianus, a suspicion which Mr. Bowles confirms. Aureus itself is quite true. It is of a most goregous shade of deep orange, almost pinkish orange in the bud, and grows very freely from self-sown seed. Of its derivatives two are listed, the Dutch yellow and aureus sulphureus. The latter is the concolor form. Four or five years ago I received under the name stellaris a crocus which at the time puzzled me very much. It had small, rather pale yellow flowers, decorated on the outside with three brown stripes. It is certainly not stellaris, and I have little doubt that it is one of the striped forms of aureus sulphureus. The only other member of the group listed, the very distinct looking Korolkowi, can generally be obtained, though occasionally Salzmannii erectophyllus is sent in its place.

Banaticus I have had from Holland. It is rather a poor doer. Besides the common garden forms of vernus a few small-flowered wild forms are offered, the prettiest of which is vernus "l'unique." Its blossoms are of an unusual shade of pale purplish pink, but it shows signs of dying out with me. Siculus from Mr. T. Smith of Newry, on the other hand, takes care of itself well but its small flowers are of a rather unexciting streaky purple. My slugs inform me that it has a better flavour than any other crocus in flower at the time.

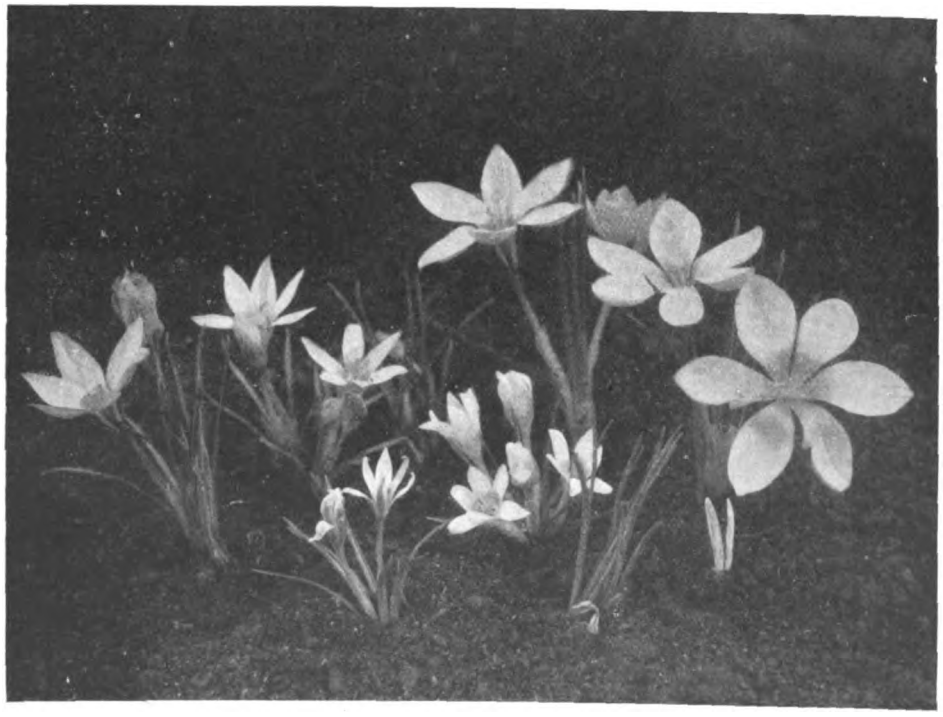
Tomasinianus in many shades of amethyst can be obtained without difficulty. It has a way of appearing when all sorts of other crocuses are ordered. A pretty white form reached me as longiflorus melitensis. Last year Messrs. Barr offered some of Mr. Bowles' beautiful variety pictus, and although late planting has made them rather pale and variable, I have not much doubt that they are true.

That delicately tinted, but robust grower, Sieberi, is obtainable only in the lilac Greek form. Susianus, with its rich mahogany exterior and distinct form presents no difficulties. It would be one of the best of all crocuses if it would flower more freely. Stellaris can now be obtained, though a few years ago Messrs. Barr sent out for it the really much more interesting striped aureus sulphureus mentioned above.

Finally, Fleischeri, with its remarkable corm tunic is quite unmistakable, and I have never found any disposition on the nurseryman's part to send anything in its place.



THE RATHER DAINTY AND UNMISTAKABLE C. FLEISCHERI.
This species is nearly always supplied true to name.



ONE OF THE MANY WHITE VARIETIES OF C. CHRYSANTHUS.
Showing the dwarf habit of some of the flowers.

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THE RAREST FLOWERS IN EUROPE

RARITY for its own sake appeals to the collector of postage stamps, but not to flower lovers, unless they be keepers of museums rather than of gardens. Yet there is something intriguing about a beautiful flower that hails from one place alone in all the world. Many plants are peculiar to one range only in the mountains; but I have in mind those that belong to a single hill or even rock. I imagine that even a schoolboy knows the wide-saucered blue or white bellflower that trails its beauty from many a hanging bowl in cool greenhouse or cottage window. From a few yards of rock, on which alone it grows in nature, on the small Cape of Noli that juts out into the Mediterranean not far from Genoa, Campanula isophylla has jumped into the homes of the people. Daphne rupestris, that shuns every limestone precipice on the Tombéa but one, and every mountain but Tombéa, bids fair to jump as far, when once the demand for its rose-pink stephanotis-like flowers and entrancing fragrance has compelled a supply at less than the guinea it now commands. Viola cornuta is as beautiful as common, in English gardens or on the Pyrenees; but its lone outpost across the breadth of France, where the high hillock of Grammont looks down on the Castle of Chillon across the Lake of Geneva, gives me the impulse to collect it just there, where it has been established by some strange freak. The most fragrant of the violets, the most unknown, Viola Comollia—of kinship with Dubyana and the other fine cenisias which are the unapproachable Ladies Vere de Vere of the mountains—is the rarest of the rare on only a scree or two of the Alps that stretch eastwards of Como, is as difficult to grow as to find, and as beautiful as it is unique with its light wine-rose petals endorsed with buff. One Corsican mountain alone stands sponsor for a dwarf columbine of the first water (yet who has seen it ?); and the cape that projects from the northern end of the island like a carbuncled nose, is the sole nursery of a sensational alyssum of normal gold and abnormal 3ft. stem. If this be a giant rarity, Thlaspi cepeæfolium is a pigmy one—the least in stature, the highest in quality of the iberis-like thlaspis, very different in habit from either of the two others that have found admittance to the alpine garden. This tiny treasure is almost entirely restricted to the low pass that cuts the Julian Alps in two near the new frontier of Italy and Jugo-Slavia, where the tourist struggles with names like Bohinska Bistritza, which he had never imagined outside of musical comedy. Not very far away there is a plant on which the limelight has been shed by no less than Baedeker, unrivalled guide but no botanist. Many a time and oft have I been unhappily lured by the words "rich flora" scattered throughout the fat little red books; and in one instance alone does Baedeker particularise as to what his rich flora might be: "Near Hermagor," he relates, "grows the Wulfenia carinthiaca, a beautiful plant with dark blue flowers, found nowhere in Europe except on the slopes of the Gartnerkofel"—and nowhere else nearer than the east of Asia.

E. ENEVER TODD.

SOME NORTH AMERICAN VIBURNUMS

BY E. H. WILSON.

MANY OF THE FINEST VIBURNUMS IN CULTIVATION ARE NATIVES OF NORTH AMERICA, AND AS YET THEY STILL AWAIT INTRODUCTION TO OUR GARDENS, WHERE ASIATIC AND EUROPEAN SPECIES ARE MORE COMMONLY GROWN.

AMONG the tree viburnums with deciduous leaves none is handsomer than V. prunifolium, the black haw. Native of eastern North America, it grows naturally on rocky hillsides and the borders of woods, and apparently delights in exposed situations. It is a small tree, occasionally 30ft., but usually from 15ft. to 20ft. tall, with a single trunk clothed with fissured bark and a shapely crown of straight, spreading branches clustered with numerous short, spur-like branchlets. These give a rugged character to the plant, whose habit resembles that of certain hawthorns. The leaves on red-purple petioles are oval, pointed or blunt, about 2ins. long and 1in. broad, smooth and dark green, and in the autumn turn a deep rich wine colour. The flowers are all fertile, pure white and are borne in flattened, rather small clusters which are abundantly produced about the end of May and early in June. Attractive in habit of growth and freedom of

ONE OF THE MOST HANDSOME OF THE TREE VIBURNUMS, V. PRUNIFOLIUM, THE BLACK HAW.

VIBURNUM CASSINOIDES WREATHED IN BLOSSOM. IT IS EXCEEDINGLY BEAUTIFUL WHEN IN FULL FRUIT.

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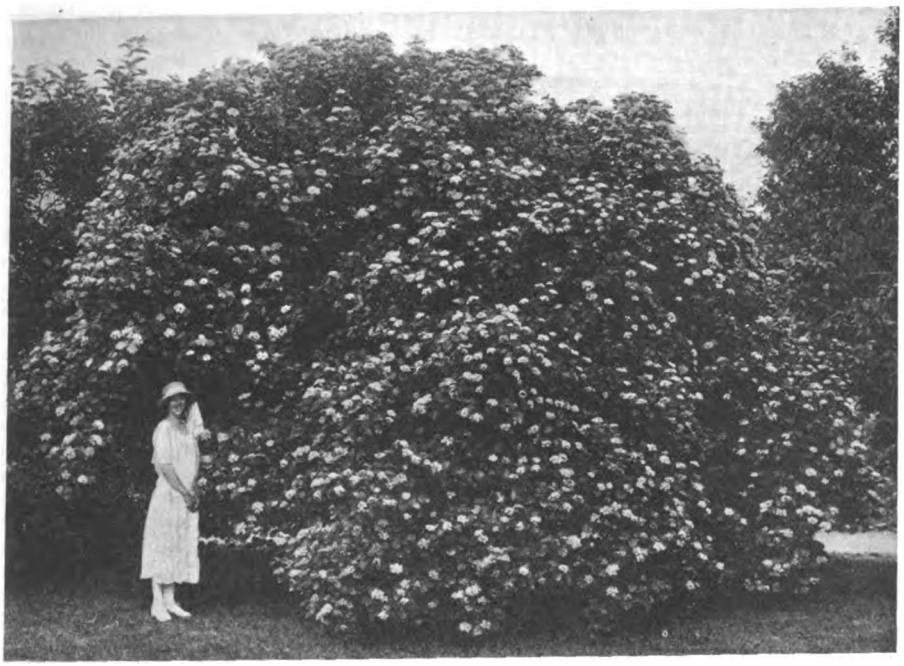


THE ROUND-TOPPED V. CANBYI, THE LAST SPECIES TO OPEN ITS FLOWERS.

blossom, this viburnum is most beautiful when in fruit, which is borne in drooping clusters. It is relatively large, ovoid, changes as it ripens from green to pink and finally to dark blue, and nearly black at maturity when it is covered with a glaucous bloom.

In the Arnold Arboretum native shrubs either in groups or singly are freely used in the borders and by the roadsides. Since it is so very beautiful in fruit, V. cassinoides in several hundreds has been planted. The fruit as it ripens becomes first cream-coloured, then pink, and finally blue-black and bloomy. In the early autumn fruit of the three colours is present in the same clusters, and the effect is very lovely.

As we grow the viburnum it is a shapely shrub from 4ft. to 10ft. tall, with numerous ascending branches, but in a wild state it is often 20ft. high and of straggling habit. The leaves are variable in size, more or less oblong to broad-oblanceolate and pointed, thick in texture and shining dark green; the flowers are cream colour with prominent stamens, and are produced many together in broad convex clusters which terminate every shoot in mid-June. The fruit ripens in September, and is ovoid in shape and about one-third of an inch long.

This viburnum is a common plant in north-eastern North America, and seems equally happy in swamps or on dry rocky slopes. So useful a shrub ought to be better known in British gardens.

The last viburnum of the season to open its flowers is V. Canbyi. This is native of eastern North America, and blossoms about the end of June and early in July. Vigorous and densely branching, it forms a round-topped bush 10ft. to 15ft. high and broad, and is well suited for using as a specimen shrub or as a screen. The rich shining green leaves are roundish, prominently veined and coarsely toothed. The flower-clusters are flattened, round about 3-4ins. in diameter, and are densely crowded with pure white fertile flowers with prominent outthrust yellow-anthered stamens; the fruit is small, ovoid and dark blue in colour. In the autumn the foliage is tinted wine colour to rose violet.

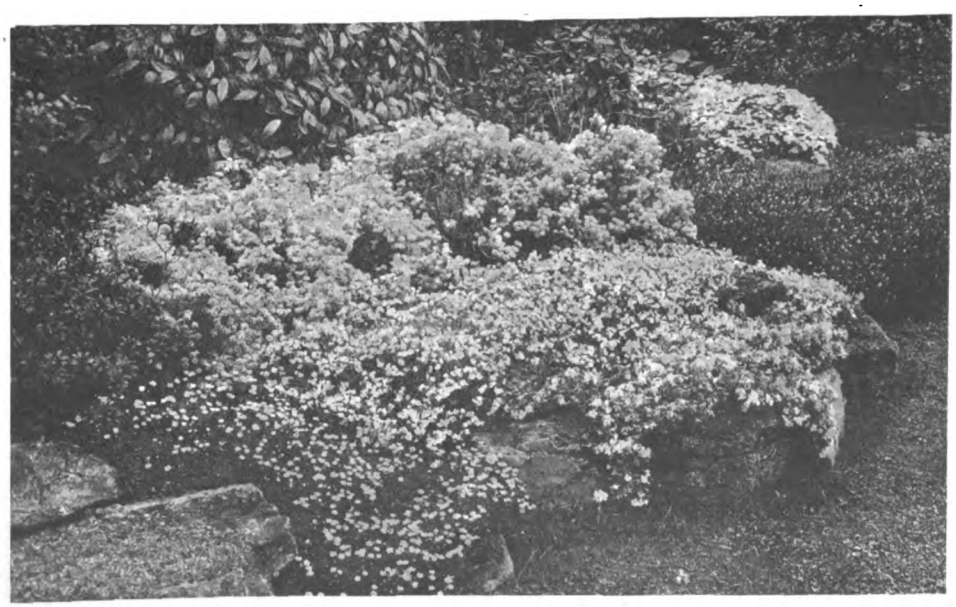
This viburnum grows naturally in moist woodlands, but in the Arnold Arboretum, where it has been freely planted, it grows well in any situation. Of rapid growth, it quickly makes a good bush, and is handsome either in flower, fruit or when decked in autumn foliage.

DWARF PHLOX FOR THE ALPINE GARDEN

NOW IS THE TIME TO MAKE PREPARATIONS FOR NEXT YEAR'S DISPLAY IN THE ROCK GARDEN. SPACE SHOULD BE FOUND FOR A FEW VARIETIES OF DWARF PHLOX TO ENSURE A TOUCH OF BRIGHT COLOUR AMONG THE OTHER ALPINES.

EVEN amid all the welter of gay colour that floods the slopes of the rock garden in May and June, the various "mossy" and dwarf phlox are capable of making their mark among the severest competition and forming cascades of brilliant flowers which "carry" far and wide. Not only is the colour range a wide one, but the species, too, are extensive and the variation in habit enables us to employ them in a variety of positions and thus gather up the fullest possible measure of their artistic possibilities. Upright growers, such as divaricata, with its erect stems 6ins. high and wonderful blue flowers, are simply glorious where used in large pockets either on a level with or below the eye. Another form of this, Laphamii, is very much larger, so far as the flowers are concerned, but the colour is not so clear.

A splendid form is the newer Violet Queen, whose colour is aptly described by the name. An exquisite little species of mat-like habit, with leaves so closely crowded together that they have a moss-like effect, is Douglasii; the tufts



SHEETS OF DAZZLING WHITE PRODUCED BY THE MASSING OF ALPINE PHLOXES IN THE ROCK GARDEN.

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of green foliage are studded all over with lavender blue flowers which, when smelt, prove to be deliciously fragrant. Amœna, instead of clustering close to the earth, rises to a height of 6ins. and bears small heads of large deep rose flowers during the month of June. Ovata caroliniana is a specially neat grower, about 1ft. tall, that carries on its flowering season into August; the tufts of foliage are very close and terminate in heads of vivid rose pink flowers that are most effective.

The variety procumbens is especially valuable and interesting. To begin with, it is the effect of crossing P. pilosa and subulata, and has resulted in a very robust prostrate plant with masses of rosy mauve flowers that make a great display. The plant has the desirable quality of flowering again in autumn, a fact that suggests great possibilities by re-crossing backwards with the object of producing a similar desirable habit in the subulata varieties. Of pilosa, the most highly coloured form is Brilliant, a useful dwarf with intense rosy crimson flowers. Stolonifera deserves to be included if only for its early-flowering habit, though its claims are much greater than this; the plant is in the form of tufts of light green foliage surmounted by heads of intense rose flowers. Verna provides quite a contrast to this, for the leaves are in masses of deep olive green with—again—rose flowers. For sloping pockets where vivid colour is the important thing, both Stellaria (starry phlox) and subulata (mossy phlox) are extremely valuable, and a large number of varieties of each are available.

All the Stellarias are vigorous growers and rapidly make handsome patches. There is much confusion between these and the subulata section. All the following, however, are true Stellarias: Annulata, milky white with a purple ring; Bridesmaid, pale lilac with a deeper centre; G. F. Wilson, lavender blue, very free both in growth and flower; Newry Seedling, with starry mauve flowers; and Seraph, white with blue-eyed flowers.

The subulatas, with their mossy deep green foliage, are simply invaluable and should be lavishly used. These, by the way, look splendid when two or more varieties are planted side by side and run into one another in the course of their growth. Of these, atropurpurea, ruddy crimson; Brightness, rose with crimson eye; Frondosa, rose flowered with crimson eye; Fairy, rose with purple eye; Kathleen, lilac with crimson eye; Little Dot, pure white; Nelsoni, white with crimson eye.

Another use for the procumbent species is as a groundwork for beds of the May-flowering Darwin or cottage tulips. These flower simultaneously and, with the varied colour range of both tulip and phlox, remarkably beautiful effects can be planned. Propagation is very easily effected by means of cuttings taken immediately after flowering. These should be inserted in very sandy soil in cold frames and kept moist until well rooted, when they may be planted out at once in their permanent quarters. In selecting the position for planting in the rock garden, etc., the importance of abundance of sunlight should not be overlooked. A strong, rather stiff loam is the best, for in a light dry soil flowering soon comes to an end.

H. W. CANNING-WRIGHT.

COMPLETE CYCLAMEN CULTURE

WHEN MAKING UP YOUR BULB ORDER THIS AUTUMN THESE UNUSUAL AND GAY LITTLE GREENHOUSE PLANTS SHOULD NOT BE OVERLOOKED.

NOTHING could possibly be simpler than successful culture of the cyclamen, and certainly nothing could be more beautiful than the exquisitely coloured butterfly-like flowers, poised above the deep green rounded leaves that so gracefully clothe the surface of the soil in which the corms are growing. In common with many other flowers, remarkable improvements have been effected in recent years, and we cannot too strongly commend the purchase of a really good strain of seeds from which to raise the supply of plants.

Many varieties are named, and one gains the advantage by purchasing these in splendid colours which are true to type, for special care has to be taken, in this case, in the selection of the seed parents. Special attention may here be directed to the Sheepwell strain, which, in addition to giant size and splendid colourings, adds the further charm of a powerful and distinctive fragrance. Another interesting "break" that is worth noting is the silver-leaved strain. In this, the leaves are of giant proportions with a broad silver zone on a deep green ground, while the flowers are a bright salmon-rose. A few of the best of the named varieties are Giant White, Firefly, Giant Shell Pink, Vulcan, Queen Mary, Salmon Scarlet, Carter's White Swan, The Sultan, Crimson St. George, Scarlet King, Webb's New Scarlet Queen, Salmon Queen, Bath Beauty, and of the excellent "Caledonian" strain the varieties Lady Helen Cassel, Septimus F. Beck, and Giant White Wonder are beautiful both in shape and colour.

CYCLAMEN SALMON QUEEN WITH VARIEGATED FOLIAGE.

At the outset of this note, we expressed the opinion that culturally "nothing could be simpler," but the whole secret of this rests upon one point—you must keep them continuously growing, right from the day when the first leaf appears until the finality of flowering is reached. Never must there be a single day's pause or check or your plants will suffer.

Sowing may be done any time during August, September or even October, but an earlier date than the latter is to be preferred, as it gives a longer period of growth. Special care should be taken when crocking the pans in which the seeds are to be sown. The compost should consist of a mixture of fibrous loam, old manure from an exhausted hot-bed, and plenty of coarse silver sand. Press this down moderately firmly, and then water with a fine-rosed can, and all is ready for the operation of seed sowing. The best mode of doing this is by dibbling in each seed separately, at distances of an inch apart. It is sometimes recommended to cover the seeds, to a depth of half an inch, with soil; but we prefer the shallowest possible covering that will hide the seeds from view. To guard against their becoming too dry, cover the pan with a sheet of brown paper and place a pane of glass over that. A brisk warmth is necessary to germinate the seedlings quickly and

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evenly and a minimum of 55° Fahr. is about correct. Directly germination takes place, remove the paper and glass and place the pan on a shelf so as to ensure the sturdiest possible growth—but take care that they are not scorched by sudden bursts of strong sunlight.

Pricking off need not be done until the leaves begin to touch each other, but care must be taken to keep the soil evenly moist. While a cool airy atmosphere is desirable for the promotion of the sturdiest growth, a strict watch must be kept that this never becomes too dry. Abundance of atmospheric moisture is the greatest aid in keeping them growing continuously, for once the outer casing of the corm becomes tough, which it quickly does in a dry atmosphere, good plants cannot result. By early February the little plants should have made sufficient progress for transfer to single pots, and a similar compost to that recommended for sowing can scarcely be beaten. The time for potting depends, of course, upon the progress made, the best time being when the seedlings are making their fifth leaf.

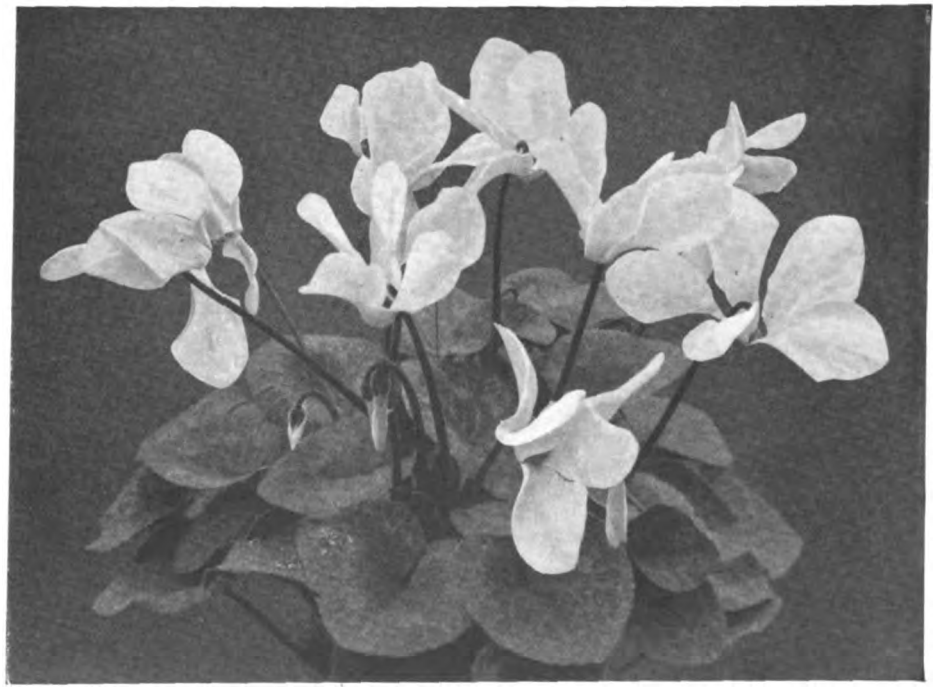
Observation will show that it is just about this time that strong roots begin to push out, and therefore they establish quickly under the new conditions. Especial care should be taken at this time to see that plenty of atmospheric moisture is present, and no better place can be found for standing the pots than on a staging covered with shingle or ashes that are constantly damped.

Potting must be done in the correct way, *i.e.*, so that the corm "sits" upon the top of a small mound of soil which slopes away on all sides to the rim of the pot. Lift the plants from the pans or boxes with plenty of soil adhering to the roots, drop them into the pots firm only by tapping the base of the pot on the bench. The cyclamen appreciates a loose soil, and there must be no pressing with the fingers or the soil will be too hard and roots will not run freely. Use tepid water for watering the soil, damp overhead twice daily, shade from bright bursts of sunshine and run the temperature up a few degrees, all of which aids in quick-rooting and re-establishment of the young plants.

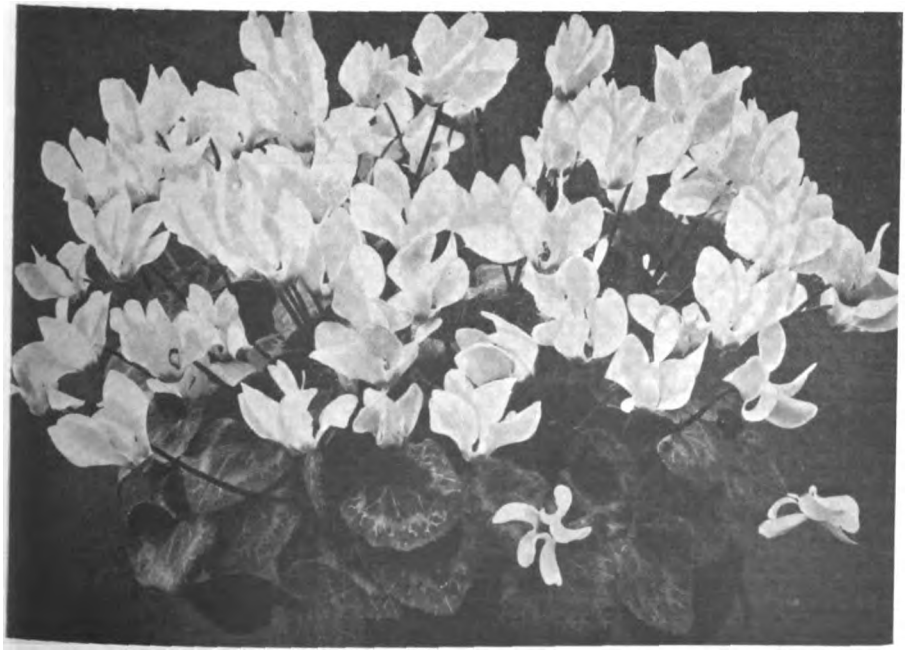
Through the late spring and summer, the chief needs will be regular watering and syringing and keeping the plants as cool as possible. After the lapse of about eight weeks, sufficient progress will have been made to permit of transfer to the flowering sized pots, which should be the 6in. or 7in. size, according to the vigour of the tubers. Follow the same methods as before, but use rather less sand and reduce the quantity of air admitted to the house for a short time until the roots get actively to work again. Through the summer, the plants do excellently when plunged in ashes in cold frames, and these, if facing north and judiciously ventilated, ensure the necessary coolness which is so essential to healthy growth.

By early October, plenty of buds will be forming and the plants should at once be placed in a good light position in an airy house, where, after a week, feeding with weak liquid manure may be commenced. Correct potting and care in watering will do much to prevent that troublesome decay that sometimes affects the corms. Take care to water early in the day and pour it on the side of the soil, so as not to flood the centre of the corm. All faded leaves and flowers that have to be removed must be pulled right out, not cut off so as to leave a bit of the base of the stalk still attached to the corm, or decay is certain to be set up.

Seed saving and cross pollinating is interesting work, and for this a few of the best plants should be set aside in a place by themselves. Cross pollination is readily effected by means of a camel-hair brush. Do this when the sun is bright, so as to ensure dry pollen, and take care that the seeds are fully developed before you pluck the capsules from the plant and also that the pod has thoroughly dried before you remove the seed from the capsule. Where such work is being carried out, a fair amount of attention should be devoted to the operation. The instruments, such as a brush and a pair of forceps, must be carefully sterilised each time, if it is intended to cross a few varieties at the one time, otherwise the results may be difficult of interpretation. After crossing has been accomplished, and seeds have been obtained, it is advisable to raise the resulting plants apart from the ordinary varieties, noting any peculiarities which may occur during their growth.



ONE OF THE FINEST VARIETIES OF THE PERSIAN CYCLAMEN, GIANT WHITE.



A FINE FLOWERED CYCLAMEN SEEDLING.

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VEGETABLES AND THEIR DISEASES

BEET.

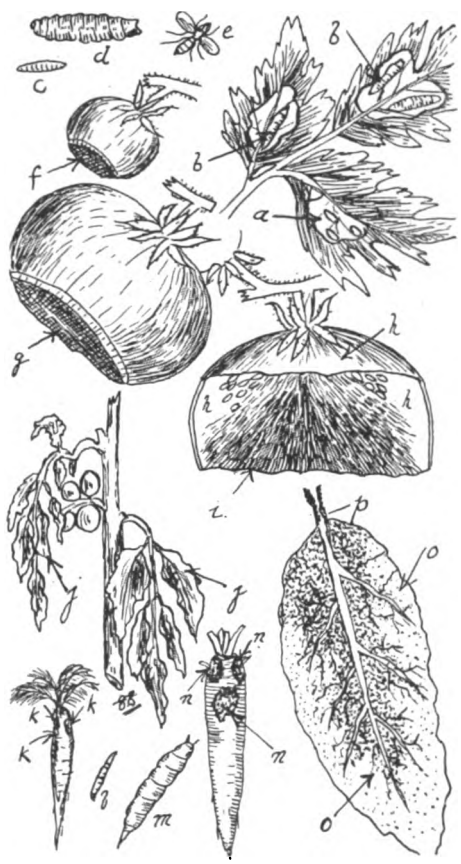
THIS excellent salad plant and winter vegetable attracts hordes of sparrows in every district where sparrows are encouraged to nest. They eat the leaves when the latter are about 3ins. high, and, unless stopped forthwith, cripple the young plants seriously. Nets, of fine enough mesh, are the surest protection, but I have found black cotton, two strands to each row, very effective, too. The cotton should be placed in position when the seedlings are tiny, being fastened to short sticks 3ins. above the tops of the plants. This, of course, is only a temporary trouble, as the sparrows do not eat the leaves of the plants from half to full growth; they do, unless stopped, eat the entire crop in a few days while the plants are young.

The beet rust is a far more serious matter. Last year some very fine even beds of beet were nearly denuded of their leaves by the middle of September. During the early stages the crops were very promising, but being grown in a heavy soil and the season coming wet and cold, too, the rust appeared at an early stage and soon destroyed all except the small, central leaves. The Bordeaux mixture is the only remedy that I know of, but I have found it advisable to sow beet seeds in two quarters, if available, in a light and heavy soil, respectively, then in a very dry season the plants in the heavier loam are the best, while those in the light ground escape a bad attack of rust and yield a satisfactory crop.

CELERY

The celery plant would be rather difficult to grow, even if it were quite free from disease and insect attack; but it is liable to be destroyed by one or the other, unless great pains be taken to combat the enemy. Last year many crops were not harvested, and half-rotted on the ground. The plants should have been destroyed at an earlier date, but the cultivators kept on hoping and as the sticks were below the soil, heaped up for blanching purposes, the extent of the damage was not fully observed. This damage to the plants was caused by the celery fly. In my own case I had a season's battle against the pest and as I wished to exhibit celery in strong competition, I was, of course, anxious. In spite of every effort, some leaves were attacked. Usually, cultivators do not begin defensive measures soon enough. The young plants suffer even before they are planted in their summer quarters. I have observed the fly at work in May and till the middle of June. At the end of July and throughout August, it becomes busy again. Although small, the fly can be seen on the wing clearly enough. The time to watch for it is towards sunset late in July and the middle of the afternoon about mid-June; look over the rows of plants towards the sun—or from east to west. They were like swarms of bees last summer.

The fly punctures the leaf and deposits [illegible]gs in the centre; when the larvæ hatch out they begin to feed on the juices of the leaves and soon create large blotches of tissue-like layers of leaf, which will, in due course, decay. The next stage is the pupæ, and from them new flies emerge from the soil about one month after the grubs are hatched in the leaves. The leaves should be made distasteful to the fly by syringing with an emulsion of paraffin oil and also quassia chips boiled and the liquid diluted well. Use these liquids weakly, but frequently—at least twice a week—and alternately. If grubs appear in the leaves, crush them between the thumb and finger. Scatter soot freely round the plants, together with a little salt to attack the pupæ and also to ward off the fly. Lime, I think, is useless. There is a tar remedy, but its application needs the care of an expert, and I do not recommend it to amateurs.



CELERY.—*a*, Leaf-mining grub as first seen in the leaf. *b*, *b*, Grubs slightly magnified, destroying leaf. *c*, Pupa. *d*, Maggot greatly magnified. *e*, The fly slightly magnified.

TOMATO.—*f*, Black spot first showing on young fruit. *g*, Disease developing as fruit swells. *h*, *h*, *h*, Sound portions of fruit. *i*, Shows section and disease quite spoiling fruit. *j*, *j*, Show sleeping disease; effect on leaves.

CARROT.—*k*, *k*. *k*, Young carrot first affected by; *l*, Maggot of carrot fly. *m*, Maggot greatly magnified. *n*, *n*, *n*, Shows effect of maggot attack on root as latter grows.

BEET.—*o*, *o*, Shows rust on underside of leaf. *p*, Leaf-stalk decaying.

The celery leaf rust is devastating during some wet seasons. I have seen plants freely treated with lime, but succumb rapidly. It is a fungoid disease and should be treated with the Bordeaux mixture. I believe some seed firms also treat the seeds as a preventive. Plant in a fresh quarter every year.

CARROTS.

Wireworms and even ordinary earthworms do much damage to carrots during the later stages of their growth, but the destruction of the roots by these pests is infinitesimal in comparison with that worked by the maggot of the carrot fly. Last autumn I visited a number of exhibitions and found four out of five dishes of carrots marred by the ravages of the fly. The early spring attack is the result of autumn egg production; then, till a little after midsummer, more broods are hatched. Although soil, in itself, especially that which contains iron, does have the effect of turning the leaves of carrots reddish-brown, the carrot fly does this, too. But, whereas, in the former case the leaves retain their upright position, they droop considerably when the grub attacks the roots.

To prevent attack, the following points should be observed. In the autumn decide upon the plot for carrots and dig in half a bushel of soot to the rod. In the spring prepare the soil, sow seeds and begin the work of thinning-out, while the seedlings are tiny, finishing the work, also, at an early stage. Apply water through a rosed watering-can immediately after each thinning, to settle the soil round those retained. Then lightly pass the Dutch hoe between the rows. Carrots like a light rooting medium and in such the maggots can work most easily.

The carrot fly is small, dark brown to black in colour, with lighter wings, which when they are shining, enable the fly to be detected. These insects can be seen with the celery fly on a warm, quiet evening. The crop must be made distasteful to the fly by syringing with quassia extract or petroleum emulsion directly, in a very fine spray, over the carrots, and by syringing paths, banks and any other vacant spaces near the bed, twice a week with a strong petroleum mixture. The oil may be mixed with sand in a pure state and so sprinkled on paths and around the beds. The fly will keep at a good distance away from the quarter where there is a strong smell of paraffin and sand helps to retain it.

TOMATOES.

White or snow fly is a pest that, in some years, has almost ruined huge houses of plants and caused much anxiety to the owners who depended, to a great extent, on the crops for their living. In the smallest house, however, the fly appears, and if not subdued, at least, will spoil the crop. I know one cultivator, who, some years ago, had to wash all the fruits before sending them to market. Now, happily, owing to various remedies, as advertised in THE GARDEN, the fly can be conquered. It is to such remedies that I advise

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cultivators to look and not to depend upon washes that are home-made and often worse than useless. When, at the end of the season, the plants are cleared out, the whole of the surface soil should be watered with a strong emulsion of paraffin oil. At all seasons of the year keep down seedlings of the common buttercup, and beware of lettuce, cucumber and vegetable marrow plants, which also seem to attract the fly. But next to the tomato itself, I have found the schizanthus the most attractive. As the eggs hatch continually while there are live flies in the house, the remedies should be applied twice weekly till all are exterminated.

Tomato plants are subject to the potato disease (Phytophthora infestans), and the remedy in this case or the preventive, which should be the chief aim, is spraying with Bordeaux mixture.

Black Spot is caused by a too close, moist atmosphere, through lack of ventilation and undue crowding of the plants. The young fruits will set and swell normally, but the half-grown fruits are affected at the flower end, the skin or rind suddenly depresses, turns brown and then quite black. Such fruits should be gathered and burned forthwith, and, if there is undue crowding of the foliage, a few basal leaves should be shortened and extra ventilation given for a week or ten days. It seems to be a disease emanating from general mismanagement and not from soil mediums, though a constantly sodden state of the soil would aggravate matters.

Sleeping Disease (Fusarium lycopersici). so called because the appearance of the affected leaves suggests sleep; they droop as if suffering from lack of moisture at the roots. The trouble begins in the soil, first affecting the roots, then the stem, destroying tissue and sap vessels. Usually, on its first appearance, odd plants only are affected, but if precautions are not taken, whole crops succumb in following years. Every year fresh soil should be used, and with it old mortar rubble or a free sprinkling of dry lime, wood ashes and, later, soot. Of course, any diseased plants found should be burned forthwith.

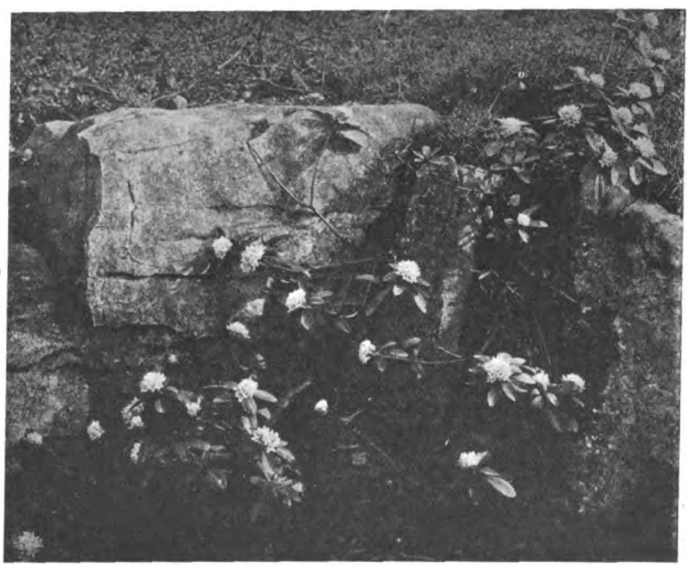
Leaf Rust is common and present with us, more or less, every year. It can be prevented by judicious planting, watering and ventilation. The brown, pepper-like patches under the leaves are due to a fungus growth, which a close, moist atmosphere favours, especially when the roots are in a wet soil—one too close and moisture-holding. The way to prevent the disease, then, is obvious, and its remedy when first observed is an application of Bordeaux mixture. It is beneficial, on hot days, when these alternate with dull, damp ones, to disperse flowers of sulphur gently among the plants. If an instrument for this purpose is wanting, take a small square of glass, place a pinch of sulphur on it, hold well above the plants and then suddenly blow it off the glass. Use more sulphur and repeat till all the house space has been so treated. This is an excellent method of counteracting this disease. G.

NOTES FROM CONTRIBUTORS

DAPHNE BLAGAYANA.

THE genus daphne contains several interesting and useful members, suitable for the rock garden, and no doubt everyone desires to possess as fine a specimen as possible of the plant illustrated. The photograph was taken at Castleford, Chepstow, the residence of Mr. W. R. Lysaght, where D. Blagayana succeeds fairly well, and D. Cneorum is represented by several large clumps.

The plant is growing between two rocks, in a mixture of peat and leaf-mould, and the position is slightly shaded from strong sun-light. The flowers are creamy-white, fragrant and usually appear in March and April. It is a dwarf evergreen shrub, with a spreading habit, and it appears to require pegging down directly any shoots are long enough for that purpose. Roots are eventually formed, and so the plant renews its energy, a condition which is essential to keep it healthy. A few small stones placed in the soil is an advantage, and during a spell of dry weather (which occasionally happens just as the plants are completing their season's growth), the roots are soaked with rain-water. We have rooted it from cuttings, these being taken in August and placed in a cold frame. During the autumn and winter a callus was formed, and when potted off in the spring and placed in a cool greenhouse, a large percentage made roots. D. Blagayana is a native of the mountains of eastern Europe, being discovered by Count Blagay in 1837, and introduced about 1875.—T. W. B.



AN EXCELLENT ROCK GARDEN SHRUB, DAPHNE BLAGAYANA.

FREESIAS—NOTES ON CULTURE.

A TIMELY reminder may be of service to those who like to have a few potfuls of the coloured varieties; for there is no doubt they require rather more care than one used to give the old white ones. They seem to be very susceptible to cold and it is essential that both the soil in which they are potted should be warm and not sodden by rain or wet, and that the pots should be put under cover at once and very carefully watered. I go so far as to put a little heat in the pipes for a few days, should the weather be cold and damp. The start is everything with the coloured varieties. If they catch a "couth" (as we say locally), it would appear that all wish to appear above ground is suspended for a year. Not that there is nothing doing in the corm itself. It is busy enough down below forming a new one on the top of the old in a similar manner to gladioli and crocuses. Another point to remember is that the coloured varieties are not so easy to force as the old whites. It may be that growers will find out that all varieties are not the same in this respect, *e.g.*, among my yellows there is a considerable difference. Cowslip comes in nearly a couple of weeks before Flame when grown side by side under identically the same conditions. The cultural directions printed in catalogues do not differentiate between the requirements of the white and the coloured. On turning out my corms this summer I have been greatly struck with the difference between those grown in light soil in which there is plenty of leaf-mould and that containing less. I think the leaf-mould helps to conserve moisture, which is all important.—JOSEPH JACOB.

FAILURE OF GYPSOPHILA

A FEW weeks ago one noticed how, in many quarters, clumps of Gypsophila paniculata, established some years, and which, up to within a few days of the buds appearing, were full of promise, suddenly fail and die off. To those who have not met with a like experience, these collapses are somewhat inexplicable. Naturally, one would imagine—if the weather be at all dry—that it is lack of water at the roots, or that they are attacked with some insect pest. In nine cases out of ten it is neither one nor the other, but is due to one simple cause: a deficiency of lime in the soil. Usually these failures are met with in places where it is known that lime does not enter into the constituents of the soil, and sooner or later, the inevitable must happen. It appears strange to those who grow the perennial forms of gypsophila that the breakdown mostly occurs when plants are about to flower, but it is easy to understand that these lime lovers, missing the very element so necessary to their existence, should fail. The only remedy is to supply the deficiency, and a good dressing of superphosphate or mortar rubble, whilst it will not revive the drooping shoots, will at least do much to prevent further failures. It is essential that old plants in soil where little or no lime is found, should have forked in about the roots, lime in some form. This, I find, is best done in spring.—W. LINDERS LEA.

TORCH LILIES.

THROUGHOUT our countryside there are certain familiar wildings that, in their flowering season, add bold colours to the landscape. Such are the kingcups that

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set the marshes aflame; and the gorse upon the common, when touched with flowers at every point, shines like burnished gold; or a breadth of red poppies in a field of corn under the noonday sun. So, too, there are flowers in our gardens that, in the zenith of their beauty, strike a distinctive note. Among them are kniphofias, or tritomas, known also under other designations as flame-flowers, red-hot pokers and, what to me seems most appropriate, torch lilies. One recognises that when they commence to bloom—though some do so a little earlier than others—autumn days are close at hand, and the opening of their fiery spikes is contemporary with misty mornings that bring a cold nip in the air.

Torch lilies indicate that the final stage of garden beauty is near, and they light the way with glowing colour. We know them as hardy plants that, once established, do not call for much interference; indeed, the less they are disturbed the better. But are they quite as hardy as we assume, and have not many been surprised after a winter when snow has lain long on the ground to find, when examining them in spring, that decay has set in? Years ago I had an experience of this sort, and afterwards took the precaution to tie up the reed-like growths to a stout stake, which kept snow and a deal of wet from the crowns, until the time came when the old material could be cut away.

In thinking of these stately flowering plants, many are apt to conjure up in their minds the crimson and orange-scarlet spikes as represented by Nelsoni, aloides grandiflora, nobilis and corallina, and do not always take into account the softer colours to be found in Goldelse (yellow), Lachesis (deep yellow), Lemon Queen and Aurora (coral). These old-time plants are best seen in a garden, where their tall spikes can be admired, with an intervening space of lawn, or on the fringe of a border, having as a fitting setting to their beauty a background of pine or other bold foliage.—CLAREMONT.

MESEMBRYANTHEMUM AS A CLIFF PROTECTOR.

HOLIDAY-MAKERS are often interested in the extent to which mesembryanthemum, particularly M. edule, is being employed for the protection of British cliffs. It is strange to think that this South African succulent is playing quite an important part in checking coast erosion. It has been proved that the plant will flourish on cliff faces, where it hangs down like a giant carpet and entirely checks further falls. Strong winds, salt spray and a sun-baked soil do not have the least harmful effect on the mesembryanthemum, which, in very unfavourable positions, will grow with a vigour that can hardly be surpassed in the vegetable world. A small shoot of the plant about the length of a finger will, in a summer, cover an area of ground 6ft. square. Whether the surface is level or nearly vertical does not seem to make the least difference, for the mesembryanthemum goes ahead binding the soil so that it will never move again. Often the succulent grows down to within a few feet of high water mark, and in the winter it must be soaked with salt water. Mesembryanthemum is not really very hardy, but on most of the English coast line, and also the western side of Scotland, it goes through the winter well. That the plant will stand a certain amount of frost is clear, for the present writer has noticed that specimens were unharmed when the thermometer fell 6° below freezing point.—L. B.

PRESERVING DELPHINIUMS.

AN interesting way of preserving the spikes of delphiniums is on the following lines: Cut the spikes with a liberal amount of stalk when they are just at their best. Now place them in a vase in which there is not more than about 2ins. of water. The delphiniums should be kept in rather a cool room, and it is most important that they should not be in direct sunshine. No more water should be added, but before that in the vase disappears a good number of additional flowers will have expanded. Leave the spikes until they become completely dry, by which time they will have been perfectly preserved. The flowers not only retain their shape, but, in addition, lose very little of their colour. The colour is retained as long as the spikes are not placed in the sun, in which case they quickly fade and turn to a dirty grey shade. Delphiniums seem to be the only flowers that can be preserved in this manner, as attempts with other herbaceous perennials were complete failures. —S. L. BASTIN.

EARLY CABBAGE VARIETIES.

ELLAM'S Early Spring is a fine dwarf, compact cabbage, and the first from which we cut this year, being ten days earlier than any of the other kinds grown here. All the varieties were grown on the same border and the plants set out early in September of last year. Flower of Spring, Ellam's Early Spring and Harbinger are in general appearance about the same, *e.g.*, height, colour and leafage, and to a certain extent the same in formation of growth and quality of earliness, yet if carefully examined points of difference may be noted, such as the outer leaves of Flower of Spring being of a lighter shade than the leaves of Ellam's Early Spring. Early York is quite a distinct type of cabbage from any of the others. The plants are big and of a loose-growing nature, while the leaves are of a blue-green colour. This variety has nothing, so far as I can see, to recommend it as a first early cabbage, as even now, in the middle of May, some of the plants have only commenced to form hearts. It should interest all who grow cabbage to know that the late Mr. Charles McIntosh mentions in his book, "The Practical Gardener," published eighty-six years ago, Early Dwarf York and Large York cabbage, two varieties still catalogued by present-day seedsmen. They have stood the trying test of time and are still to be had. —DAVID ARMSTRONG, *Midlothian.*

THE YELLOW SWEET PEA.

THERE is probably no horticultural novelty so eagerly anticipated or so strenuously worked for by everyone connected with plant improvement as the yellow sweet pea, and yet it seems as far away as ever. There are no doubt intense creams on the market entitled to be classified as pale yellow, but certainly there is no variety in existence having flowers of a decided buttercup yellow, the colour which haunts the dreams of the sweet pea hybridist.

A new variety may arise in one of two ways. The first is seen when, as the result of a cross, man-made or natural, existing characters are reassorted and a new combination formed. By far the larger number of the new types arise in this way. The second class of origination occurs when the plant for some reason "sports" or mutates to throw an entirely new "break." The first method is the only one available to the hybridist. He can only juggle with and recombine the characters provided by Nature. Mutation or sporting, the second path along which improvement may pass, is a peculiarity of the plant, and there is no method known for producing it. A new break of this type, however, nearly always leads to many new varieties, as the new character is worked into the existing forms by crossing. An outstanding example of this was seen when the advent and subsequent exploitation of the Spencer type duplicated practically every variety then in existence. The peculiarly interesting point about the yellow sweet pea, however, is the uncertainty regarding the way in which it may arise. As is generally known, yellow flower colour, if it is to have any "substance," must be based on little solid bodies (plastids) floating free in the cell, while all the other colours are the result of fluid dyes or cell sap. Both the solid and the liquid forms of yellow are available in the sweet pea, but as yet they have not occurred either singly or together with sufficient intensity as to produce "buttercup yellow." Now, running through the plant breeder's mind is the question whether it is possible to combine the yellow cell-sap or the yellow plastids in one plant with the known factors for flower colour intensification, so that an intensified shade of yellow may be produced, or are the intense creams at present on the market the result of this meeting and therefore the farthest we may go by means of crossing? If this latter be the true state of affairs, then horticulture can only wait until Nature provides what is not already there. With our knowledge of the sweet pea in its present state it is hard to tell if all the necessary conditions for producing the yellow have ever been satisfied, and therefore hybridists will be well advised to continue their labours and growers to continue their search. While inter specific and even inter generic crosses have always been mooted as a means of bringing yellow to the sweet pea, they can hardly be encouraged, because sterility, that spectre which haunts the too enterprising hybridist, nearly always steps in at some stage of the work. The most likely line of work seems to be inter-varietal crosses using always as one parent a variety known to carry the yellow tinge, as, for example, some of the scarlets and orange types.—ALEXANDER NELSON.

RUBUS ALCEÆFOLIUS.

A GOOD many brambles from the East have found a place as ornamental shrubs in our gardens. Most of them are perfectly hardy, but a few can only be grown under glass. Rubus alceæfolius is one of these. It is a fine huge climber, well adapted to be grown against pillars or similar places in a temperate house, where it will form a very attractive specimen within a short time. It has stout tomentose prickly stems and most beautiful, large, 5–7 lobed and lobately dentate leaves of a pleasant bright green on the slightly pubescent upper side. The back of the leaves is densely white or yellowish tomentose, especially on the younger ones, which adds greatly to their beauty. The flowers are rather large, white, and stand in short-stalked clusters in the axils of the leaves or in a terminal panicle at the top of the branches. The calyces are densely hirsute from rather long and stiff yellowish hairs, and bracts and stipules are finely split into numerous very narrow segments.

The plant succeeds well in a substantial fresh soil and in a place not too much exposed to burning sunlight. It grows and flowers freely for most of the summer until late in the fall.

R. alceæfolius is a native of Java and Sumatra, where it grows in forests and among bushes up to a considerable altitude. It would well deserve to be tried out of doors in gardens of a milder climate, such as in south-western Ireland, in the Scilly Isles and along the Mediterranean. But it should be planted in a sheltered place, where dry and cold winds, or excessive sunlight cannot hurt it. Wherever it will grow successfully it will form a valuable addition to the shrubbery, both from the point of view of blossom and foliage.—ALWIN BERGER, *N.Y. State Agricultural Experiment Station, Geneva, N.Y.*

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CORRESPONDENCE

SAXIFRAGA COTYLEDON CATERHAMENSIS.

SIR,—I have been noting the beautiful saxifrage under the above name at Chelsea, and have no doubt it is a hybrid between S. Cotyledon and S. Hostii or S. Macnabiana, which is itself a hybrid. Some years ago I grew a form under the name of S. Cotyledon which proved to be one of these hybrids. In this form, however, there was a much greater length of stem before flowering branches were reached, showing the leggy character of S. Hostii. The true S. Cotyledon has pure white flowers, with very narrow petals, four times the length of the calyx lobes. The flowering branches commence a little above the base of the stem, and continue to the apex, each branch carrying five to fifteen flowers. This form was much grown in the early eighties of last century. Single crowns were potted up in small pots, and shifted when necessary till the crown of leaves would cover a 5in. or 6in. pot. When the plants commenced to flower they were taken from the cold frames to the greenhouse or conservatory, where the stem reached 30ins. or more, and formed a perfect pyramid of flowers. The new form S. C. caterhamensis is more conspicuous by reason of the broad, handsomely spotted petals. Insects readily hybridise these saxifrages when brought together in gardens, independently of artificial crossing, while hybrids are frequent in the wild state.—KEW.

PRIMULA HELODOXA.

SIR,—Primula helodoxa is now in splendid bloom here, and greatly admired by all who see it. A kind English lady sent it last year and I followed her directions as to treatment, and if I can get seed from its four fine trusses, I shall feel well pleased. Should this short account of it meet her eye, I would be grateful if she would kindly write to me anent its propagation. I live in fear that after its seeding time it may die. The very showery and cold spring evidently suited it very well. Now we have tropical heat.—L. HILL POE, *Riverston, Nenagh.*

VIOLA HETEROPHYLLA.

SIR,—Two summers ago, I collected from the Cima Tombea a few plants of Viola heterophylla—a dainty little pansy in the cousinship of V. cenisia, and belonging to a section rather notorious for difficulty. My collected plants did not live more than a year; but they died all of them carrying fat capsules of seed. This seed, which was sown in autumn, in a spirit of no great optimism, germinated in two or three months, almost as readily as a pink, and left me with several nice little plants, which grew rapidly and compactly, flowering, some of them, the next year. The plant in nature was of a rambling character, with long underground roots cropping up here and there into a clump of foliage and flower; but the seedlings have not got this rambling habit, but grow into neat, compact plants. Moreover, the plants have been perfectly easy to grow, and are, at any rate in the limestone moraine in which they are planted, very free flowering. Lastly, and most important, they are definitely beautiful—a little angular pansy face of purple, with a distinct patch of darker purple round the centre and little eye-lashes of black—small, indeed, but large for the size of the plant. Is it possible that here, as in the case of many a difficult alpine, the solution of the cultural problem is to raise plants from seed, thus getting more initial vigour than can be possible with a collected piece, however carefully re-established? Could anybody give me news of seedlings raised from the three other high-alpine pansies, V. cenisia, valderia and nummulariæfolia, which I have never met in nature or in cultivation? If raising seedlings is the best way of cultivating all these four high alpines, it may well be that we might make easy friends with four charming pansies, which have hitherto been dismissed from the mind—and from the garden—as paralysingly difficult.—R. L. HOLDSWORTH, *Harrow-on-the-Hill.*

TRILLIUM GRANDIFLORUM.

SIR,—There was some correspondence in your columns of late concerning rabbit-proof plants, and although I have learnt by experience to be chary of pronouncing *any* plant to be safe from these all but omnivorous rodents, I venture to recommend Trillium grandiflorum as practically immune from attack. Of course, when newly planted, rabbits will bite it off out of sheer cussedness; but if the plants are protected when first set out in the woods until they are well established, they are left unhurt afterwards. That is our experience here, and trillium looks far more charming in woodland than in a flower border. I wish I could send a photograph of this plant in the wild. Failing that, I enclose one of a patch in the flower garden which has been established for more than thirty years and never fails to bloom profusely.—HERBERT MAXWELL, *Monreith.*

A FINE PATCH OF TRILLIUM GRANDIFLORUM IN A FLOWER GARDEN.

THE MINIATURE DAFFODILS.

SIR,—Allow me to add a little information to the recent notes on some of the smaller narcissi by your correspondents Mr. E. Cahen and Mr. J. H. Watson, as my experience goes farther back than theirs. N. triandrus calathinus was first introduced by that distinguished scholar, botanist and gardener, my old friend the late Charles Wolley Dod. In 1884 or 1885 he obtained bulbs from the Botanic Gardens at Brest, some of which he gave to me, and I have perpetuated the plant from seed ever since. It was his custom, when visiting a relative near the foot of the French Pyrénées, to employ a collector of narcissi from the lower and higher levels. It was from him that I had the little N. moschatus, now, I fear, almost exterminated from its habitat in the Gavarnie district. The discovery of N. pallidus præcox was due to him, also of other wild narcissi now lost to cultivation. He was acquainted with the ordinary form of N. triandrus long before it was "found" by Mr. Peter Barr. Before 1890 I had gathered together, mostly from Mr. Wolley Dod, a considerable collection of these small forms, and raised a variety of interesting hybrids between them, using also forms of N. corbularia. The late Sir Michael Foster produced some hybrids identical with mine. But they proved difficult to keep; some may still exist with friends to whom I gave them as rockery or alpine-house plants, but I have long since lost sight of them and of most of Mr. Wolley Dod's gifts.—G. H. ENGLEHEART, *Dinton, Salisbury.*

CLERODENDRON UGANDENSE.

SIR,—Can any of your readers give me any information about this plant? I have seen it at the R.H.S. and also at Kew, but do not know if it has been tried out-of-doors in Cornwall or Ireland yet: it has bright blue flowers, and I thought it most attractive.—H. G. HAWKER, *Devon.*

GARDENS OF HEALING.

SIR,—The articles on "Gardens of Healing" in THE GARDEN were very interesting indeed. I wonder if some of our old country remedies would interest readers. In the following recipes "tea" means 1 oz. of the dry material brewed with 1 pint of boiling water and allowed to stand an hour. Speedwell.—Tea for gout. Yarrow.—Tea for colds, to be drunk warm. One cupful for a dose. Meadowsweet.—For children's diarrhœa, 1 oz. of leaves to 1 pint of boiling water. One wineglassful for a dose. Plantain.—Tea for diarrhœa. Leaves for stings and bites and a poultice for wounds. Ragwort.—Tea of leaves for sciatica, rheumatism and influenza. One wineglassful per dose. Woodruff.—Tea for liver complaints. Dried and stored will keep away moths. Balm.—Tea, 1 oz. of young tops to 1 pint of boiling water. Stand a quarter of an hour. Drink freely for feverish patients. Rosemary.—Tips of leaves and flowers infused and strained. Add a little borax. This prevents baldness. Camomile or poppy heads dried and used in boiling water will ease faceache if inhaled. Virgin lily.—Petals stored in wide bottle and covered with brandy will heal cuts. They will keep for years. Coltsfoot.—A handful of leaves to 1 quart of boiling water. Stand for twelve hours. Sweeten and give one cupful for coughs. Ground ivy for weak eyes. Leaves and flowers infused with boiling water. Bathe two or three times a day when cold. Watercress for eczema. Wash well, melt lard and stir in watercress until bright green. Goosegrass and nettle tea for purifying blood. Plantain, ground ivy, vervain and bean flowers in equal quantities make a healing lotion. Cowslips as tea for nerves. Violet leaves (garden)

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alleviate pain and cure cancer. Greater celandine, chelidonium or swallow-wort makes "golden ointment." Squeeze juice out of stalk, add one tablespoonful to ¼lb. of lard. Mix well. Vaseline for wounds and bruises. House leek for corns. Peel skin off leaf, bruise it and bind it on the corn with a strip of linen. Repeat two or three times. Mugwort seeds mixed with tobacco, 1 oz. of tobacco to ¼ oz. of mugwort, relieves asthma. Lime blossom for a tessicking cough. Dry and brew like tea.—H. LAMBERT.

SAXIFRAGA OR MEGASEA LIGULATA

SIR,—The illustration of the Siberian saxifrage shown in THE GARDEN of July 4th is, I see, named Saxifraga or Megasea *crassifolia*. Unless the Kew authorities have lately refused to consider the many varieties of this saxifrage as worthy of distinct names, I beg to state the excellent plant shown there is *not* crassifolia—for that species has big, cabbage-like, circular foliage and short stumpy spikes of dull pink flower which appear much later in the season. As far as I know it, the name generally given to it is ligulata, and it is far superior to the crassifolia form, which was that commonly grown in England until folk brought this from the south of France.—E. H. W.

GARDENING OF THE MONTH

FLOWER GARDEN.

AMARYLLIS.—Plant now in holes 6ins. deep.

ANNUALS.—Sow now on warm dry border, eschscholtzia, Shirley poppies, clarkia, candytuft, cornflowers, nigella, phacelia, etc.

ANTIRRHINUMS.—Sow now thinly. Prick out into well drained border or into frames.

BULBS.—Commence planting and preparing sites. Plant daffodils in grass and bulbs in the wild garden. Plant now bulbocodiums, crocuses, colchicums, leucojums, Scilla sibirica,

CARNATIONS.—Finish layering.

CHRYSANTHEMUMS.—Disbud and tie up. Give artificials once a week.

LAVENDER.—Insert cuttings in sandy soil, and water. Cut flower spikes soon.

LILIUM CANDIDUM.—Plant now in clumps. Place sand at base of bulbs.

PRIMROSES AND AQUILEGIAS.—Transplant to permanent quarters.

PROPAGATION.—Take cuttings of hydrangeas, salvias, ageratum, pentstemon. Insert in sandy soil in frames. Water and shade.

ROCK PLANTS.—Propagate by cuttings saxifrages, sempervivums, sedums, etc.

ROSES.—Feed hybrid perpetuals with liquid manure. Insert cuttings of ramblers in sandy soil. Remove faded flower shoots of climbers. Prune ramblers after flowering, and tie in young shoots. Bud more roses.

SEEDLINGS.—Plant out foxgloves, bellis-perennis, pansies, sweet william, Canterbury bells, etc.

SHRUBS.—Clip yew hedges. Remove dead flowers. Hoe and weed shrubberies. Examine grafted trees, loosen ties. Propagate by cuttings such shrubs as philadelphus, cistuses, helianthums, deutzias, rhus, tamarisk, etc. Insert half-ripened shoots in sandy soil, cover with a hand-light, or, if available, place in propagating case with slight bottom heat.

STOCKS.—Plant out Brompton stocks into sheltered spot.

SUMMER BEDDING.—Remove fading leaves and flowers. Keep tall plants well staked and carpet plants pegged down. Propagate by cuttings zonal pelargoniums, ivy-leaved geraniums, fuchsias, violas, pansies, ageratum, verbena, heliotrope, etc.

GENERAL.—Weed lawns. Apply weed-killer to paths.

HARDY FRUIT.

BUSH FRUIT.—Thin out excessive growths. Prune black currants, burn trees badly infected with big bud. Spray gooseberries infected by American gooseberry mildew.

CHERRIES.—Thin Morellos for culinary use. Net trees well. Train in young shoots. Give good supplies of water.

FIGS.—Feed regularly trees carrying good crops. Remove coarse growths and train in young shoots. Expose fruits to sun.

FRUIT ROOM.—Give a thorough cleaning. Scrub all trays and limewash the walls.

LOGANBERRIES.—After gathering fruit, cut out old wood. Tie up new growths.

PEACHES AND NECTARINES.—Take off unrequired shoots. Tie in new wood. Expose fruits to sun. Do not let the borders get dry.

PESTS.—Keep down woolly aphis, wasps, ants, etc. Hay-band or grease-band.

PLUMS.—If carrying heavy crops, support lower branches with props.

RASPBERRIES.—Cut out summer-fruiting canes. Tie up new canes to wires. Give slight mulch if this has not already been done.

STRAWBERRIES.—Make and plant new beds. Water runners after planting. Clean up old beds. Hoe and water well, and give a good dressing of fertiliser. Sever layers from parent plant if wanted for forcing. Stand pots on boards at foot of wall.

WALL FRUITS.—Give copious supplies of water. Net plums. Train in sh oots of young trees before wood ripens.

VEGETABLES.

BEANS, RUNNER.—Water and feed well. Give a light mulch of manure. Pick when young.

BROCCOLI.—Plant out the remainder.

BRUSSELS SPROUTS.—Sow a small quantity of seed now. Prick some out into nursery beds, and leave remainder untouched.

CABBAGE, SPRING.—Make another sowing. Water drills if ground dry. Transplant early sown seedlings.

CARROTS.—Thin carefully late sowings. Sow horn varieties now.

CAULIFLOWER.—Sow in boxes and place in a cold frame. Prick off into frames.

CELERY.—Remove decaying leaves and growths. Tie up with raffia. Give another earthing up after a good watering. Pick off leaves attacked by maggots, and give an occasional dusting of soot.

ENDIVE.—Sow now. Prick out seedlings at end of month.

ONIONS.—Sow now on south border. Give a dressing of wood ashes and lime before sowing. Use such varieties as White Lisbon or Ailsa Craig. Bend over tops to assist ripening. Do not store until quite dry.

SPINACH AND TURNIPS.—Sow now for winter supplies. Thin soon.

SPINACH BEET.—Give soaking of liquid manure. Make a final sowing.

TOMATOES.—Do not over-feed or water those outside. Gather fruit before quite ripe, finish ripening on greenhouse shelf.

VEGETABLE MARROWS.—Thin out weak shoots, water well and feed occasionally.

WINTER GREENS.—Continue to plant out as the ground becomes vacant.

FLOWERS UNDER GLASS.

BEDDING PLANTS.—Take cuttings. Insert in sandy soil in boxes and stand outside in cold frame. Sow Centaurea candidissima in boxes. Place in frames, pot when large enough.

BULBS.—Pot up early batches of Roman hyacinths, Paper White Narcissi and prepared Dutch hyacinths. Plunge in ashes outside. Pot up crocus species, lachenalias and freesias in 6in. pots, and keep in cool quarters in frames; plunge up to rims in fibre. Pot Lilium candidum in limy compost, and plunge in ashes up to rim of pots at foot of a wall.

CACTI AND SUCCULENTS.—Propagate now.

CALANTHES.—Feed well when showing flower. After flowering decrease the supplies of water.

CALCEOLARIAS, HERBACEOUS.—Pot into 3in. pots at end of month.

CAMPANULAS.—Pot in 8in. pots those required for greenhouse decoration and stand outside.

CARNATIONS.—Pot up rooted layers of malmaisons and return to frames. Pot layers of border carnations.

CHRYSANTHEMUMS.—Give light top-dressing when roots appear on surface. Continue tying and disbudding. Feed at intervals. Guard against earwigs.

CLARKIA ELEGANS AND SCHIZANTHUS.—Sow in pans.

CINERARIAS.—Pot on. Destroy leaf-mining maggot and spray infected plants with quassia extract.

COLEUS.—Take cuttings of ornamental varieties.

CYCLAMEN.—Feed with guano or soot water. Sow seed thinly in pans, using a fairly light compost. Shade until germinated. Prick off into pans, and put in house of moderate temperature.

FUCHSIAS.—Partly shorten back stock plants. Start into growth in warm house. Take cuttings of young growth.

GREENHOUSE HEATHS.—Propagate by cuttings. Insert in well drained pots containing sandy peat. Select small half-ripened shoots. Stand under bell-glass in cool house.

HELIOTROPE.—Pot rooted cuttings into 3in. pots.

NERINES.—Give resting period in frames. When growth commences, water and repot, using compost of rich medium loam, a little sand and mortar rubble.

PRIMULAS.—Feed. Pot on P. obconica in 6in. pots, keep cool and shaded.

STOCKS, WINTER-FLOWERING.—Pot into 5in. pots and pinch points fourteen days after.

ZONAL PELARGONIUMS.—Pinch off flower spike until end of month. Feed with Clay's. Propagate by cuttings taken from summer-flowering plants.

FRUIT AND VEGETABLES UNDER GLASS.

APRICOTS.—Tie in young shoots. Allow wood to ripen when fruit is gathered.

FIGS.—Stand pot figs outside in sunny position to ripen. Maintain a buoyant atmosphere in house where trees are still carrying fruit.

MELONS.—Ventilate more freely when fruit is ripening. Discontinue damping. Remove useless growth gradually.

ORCHARD HOUSE FRUIT.—Place trees outside when fruit is gathered. Do not let roots get dry. Plunge pots up to rims in ashes, and water frequently, and give a light mulch of decayed manure.

PEACHES AND NECTARINES.—Syringe forcibly to keep down red spider directly fruit has been gathered. Do not let roots suffer from lack of water.

VINES.—Give muscats a drier atmosphere when ripening. Leave top air on at night. Exclude wasps by covering ventilators with tiffany. Half-prune early vines and spray to keep down red spider. Place a layer of clean straw over borders in late vinery to conserve moisture. Plunge pot vines outside

CUCUMBERS.—Keep temperature warm and moist. Apply liquid manure frequently.

TOMATOES.—Top-dress, if this has not already been done. Re-pot June-sown plants and keep them growing sturdily near the glass. Fumigate at once if white fly is seen.

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SIMPLE GARDENING

WHY SOME GARDENERS FAIL WITH PLANTS.

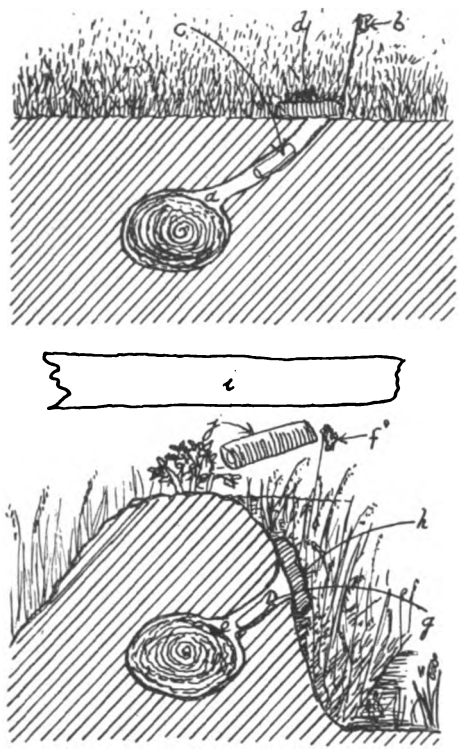
GARDENERS are greedy as well as generous. They are, as a class, exceptionally generous; if they succeed well with certain plants, and a neighbour or visiting friend does not possess these particular plants, few things give more pleasure than that of a presentation of some of the stock to someone else. They are also greedy in another way, in that they wish to grow many plants—too many for the accommodation afforded—and the results are disappointment, chiefly to themselves. This kind of greediness is, really, excusable, as one is so often tempted to grow one hundred plants when there is only room for fifty. Of course, there are isolated cases where an expert cultivator can crowd in many plants in a greenhouse or stove and do them all really well. I know one such cultivator; he was, thirty years ago, an expert cultivator growing stove and greenhouse subjects splendidly, and one wondered how he managed to do so, owing to their size and health, the structures being so small in proportion. I also know a gardener who always resists this temptation, and grows just the right number of plants to fill the given spaces, and so grows very fine specimens. The two are, almost, exceptional cases. It is, really, good policy, especially during the winter months, to avoid undue crowding of the main subjects in greenhouses and conservatories, and this is a good time to make the necessary arrangements, doing the best plants well and discarding the rest.

EARLY TRENCHING OF VACANT GROUND.

Even sandy ground is all the better for being trenched at least once in three years, and that of a heavy retentive nature, such as clayey mediums, is certainly much improved. Very light soils may be dealt with in this respect, any time during the winter, with good results; but stiff soils cannot be so treated and turn out satisfactory if they are dug or trenched while in a saturated condition. The only way to deal with such ground is to ridge it, throwing up the soil in rough chunks to form ridges about 2ft. across at the base and 18ins. high. Ordinarily severe weather will then penetrate such ridges, and, in the spring, the soil, when levelled, will crumble to pieces—almost a powder—and it will be a pleasure to work it; the resultant crops, whether from seeds or plants, will thrive in it during the following summer. It does not matter how rough the plot may look when the work of trenching or ridging is done; but it would be a big mistake to meddle with such trenched or ridged soil while it was, later on, in a pasty condition. If left undisturbed, the soil will dry sooner than if it was forked up prematurely. I may urge similar treatment for new ground, ground now all weeds and rubbish or good grass. As soon as possible, the turf of such ground should be peeled off and stacked for future use, and the soil trenched. The weedy ground should be top-cleaned and the rubbish burned out at first. So we see how important it is that vacant ground should be cropped or trenched from now onwards.

WASPS AND THEIR DESTRUCTION.

Owing to the wet weather last winter and in the early spring many queen wasps were destroyed. In some districts, especially where hay and corn ricks were numerous and thatched cottages and outbuildings exist, there was ample shelter from cold and wet, and so queen wasps survived. Although fruit crops are good in many districts, we do not appreciate their destruction by hordes of wasps, rather we would destroy the latter. The netting of choice plums,



pears, apples and peaches is essential in some parts even where the nests are destroyed wholesale. The nests are dealt with in various ways, by damp and dry powder squibs, etc., but I am explaining the simplest way. The nests should be located during the daytime. Watch the wasps leaving the fruit quarters as far as you can see them, then go to that point and watch them passing a further stage, and so on to the nest; then fix a stick with a white paper on it close to the nest. The nest should be destroyed soon after sunset, when the wasps are at home. This is easily done by inserting a small roll of cloth, the size of one's finger, in the entrance hole and stopping the latter with turves and fine soil trodden down. The cloth should be saturated with turpentine. The method is shown in level ground and in banks. At *a* the nest is shown; *b*, the mark stick; *c*, the roll of saturated cloth; *d*, the stopping-up soil. In a bank *e* shows the nest; *f*, the mark stick; *g*, the saturated cloth; *h*, the stopping-up soil; *i*, the strip of cloth; *j*, the latter rolled up ready for dipping in a vessel of turpentine.

TOMATOES: LATE SUMMER AND AUTUMN TREATMENT.

To reap the best from every plant grown and fruited throughout the summer months, we should judiciously reduce the amount of foliage and stop the plants in due time. After many years' experience I have found it advisable to stop plants growing in the open air at the end of July, and about August 15th in the case of those growing under glass. On or about these dates, respectively, I pinch off the ends of the plants just beyond the truss of flowers last formed. This truss of flowers should be well shaken during the three days following. This treatment helps to distribute the pollen and set the fruits, which quickly swell and attain a large size. The leaves, also, grow rapidly; some of the lower leaves should be reduced in size if they are turning yellow or cause overcrowding. If the plants are allowed to continue making new growth, both the growth and the young fruits borne on it will be useless and do harm, because they rob the lower fruits, which have a chance of ripening, and thus reduce the weight of the available crop. Furthermore, the removal of the tops in due time allows more air and sunshine to reach the fruits, which colour better. The latest crops are borne on young plants occupying sunny positions under glass and which are now showing the first truss of flowers. Not more than three trusses should be allowed to mature on these plants.

GRAPES.

The early varieties, such as Black Hamburgh, Foster's Seedling and Buckland Sweetwater, will be colouring nicely, and the late ones hardening the stones in the berries. Where all are grown in the same vinery, it is difficult to treat all as they should be; but usually they are grown in separate houses. Now, black grapes "finish" better under a slight shade than when unduly exposed to the sun's rays; whereas the white grapes put on that rich amber colour better when they are exposed, after the stones have hardened. All varieties are liable to be badly scalded if they are exposed to the sun unduly while the stones in the berries are hardening, and the Muscats are the ones to suffer most in this respect. Approximately, the stoning process occupies eighteen days in the case of early varieties, and twenty-two in that of late ones. The berries are hard to the touch, but soft after the stones in them have hardened. The final stage of feeding should come now and end when the colour is perfect. Night air, in moderation and according to the weather conditions, is beneficial; more air, generally, should be the rule, especially through the front ventilators; but the latter should be almost closed at sunset. All sub-lateral shoots should be removed weekly.

GEORGE GARNER.

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IPSWICH FLORAL FETE

CONSIDERING the prolonged drought that has been experienced in this district, and the heat wave that occurred before and during the Show, it was a matter of congratulation that the exhibits were so good as those shown at Christchurch Park on Wednesday, July 15th. For a droughty season the exhibits in practically all classes were exceptionally fine. Pride of place and attention in the floral exhibits were accorded to roses, which were very good. Especially attractive was the large group of cut roses erected by E. J. Hicks of Hurst, Berks, and granted the silver challenge vase. Closely following in point of excellence were the exhibits of F. Cant and Co., and B. R. Cant and Sons, and Messrs. Allen, in whose group the dwarf polyantha Orange King was prominent. In the open classes for cut roses (thirty-six blooms), Messrs. F. Cant were first, B. R. Cant second and D. Prior third. The first-placed exhibit won the silver challenge bowl, and in the second prize lot was the premier individual bloom of the Show—J. G. Glassford. The amateur classes were fairly well filled and some good blooms staged.

Sweet peas were another striking attraction. Messrs. J. K. King put up a representative group of good varieties, prominent among which was Royal Scot. It secured for them the silver trophy. In the vase classes there were some exceptionally good displays, the first prize exhibit for nine vases being quite striking. This was staged by A. E. Garrod, the other prize-winners being Dr. Turnbull and Sir G. Ryan. Space will not permit of our referring to all the exhibits in this and other classes which really merit mention.

Carnations were not quite so prominent, but there were some good flowers. A fine display secured for H. Lakeman a silver bowl, and he was also successful in other classes in the open section. There were some good vases of hardy flowers, but in these classes competition was not so strong, the hot weather obviously being against the showing of these flowers.

Considerable space was given to floral decorations, and these were a feature of the Show which was, evidently greatly appreciated by the visitors. There were some distinctly artistically decorated dinner-tables, the work of the judges being by no means easy. Bowls and baskets of flowers were also a striking feature.

In the classes for grapes, white and black, Mrs. Jump and F. S. Stevenson were first and second in each case. Mrs. Jump also staged some fine nectarines and peaches, meriting the first award. Small fruits were fairly well represented. Although one could realise the ill effects of the drought by the number of the exhibits, there were some fine vegetables, especially of potatoes, peas and vegetable collections. In the main collection the prizes were awarded in the following order: J. Cobbold, Major Vivian, W. Reavall.

Taken as a whole, and in view of the adverse season, it was a Show of which Ipswich might well be proud, and reflected great credit on those responsible for the arrangements.

BOOK REVIEW

FROM America we have just received a volume which will probably, in years to come, rank as a classical contribution to the already long list of horticultural works. It is the story of a garden—a great garden, which already, after fifty years of its life, ranks as the finest institution of its kind in the world—and it is called by a most unpretentious title, "America's Greatest Garden," by Ernest H. Wilson (published by the Stratford Company, Boston, Mass., U.S.A., price $3.00). The author requires no introduction to readers of THE GARDEN, and our task is, therefore, all the more easy in bringing his latest and one of his best works to your notice. His record as a botanical explorer and collector is fully testified in all gardens, where trees and shrubs are grown, as almost every genus have been enriched to the extent of one or more of its members by his travels abroad. We owe the introduction of many of our finest garden shrubs to his keenness and enthusiasm, and in this volume he tells the story of how many of these are thriving in the Arnold Arboretum, of which he is the Assistant Director. As such he is ably qualified to write such a book, and his love of this great garden and collection is revealed throughout its pages. The opening chapter tells in simple language how the Arboretum originated and what it stands for. Probably no other institution has so much to its credit as this adjunct to Harvard University. All horticulturists and, more especially, American gardening enthusiasts, are deeply in its debt.

In the next four chapters, Mr. Wilson conducts the reader through the four seasons and describes the changing landscapes in words which could not be surpassed by the brush of a master artist. Four of the noteworthy floral pageants in spring are eloquently described—the cherries, whose numbers have been so largely increased by Mr. Wilson's travels in Japan; the crab apples, the lilacs, and the azaleas, which have also been greatly enriched by the author's explorations. Some of the noteworthy collections to be found in the garden are chosen to give the reader an idea of how the Arboretum is laid out. There are the oaks and hickories, the rhododendrons, hawthorns and the great conifer group. In these chapters, all the species growing in the garden are adequately treated and described in a masterly way, and the average gardener will find these not only full of interest and enjoyment, but also full of instruction. Two chapters on Climbing Plants and Border Plants are both full of valuable information and serve as a useful guide as to what genera can be profitably employed. A few pages serve to picture what a shrub garden should be, always bearing in mind, however, that the Arnold Arboretum is a public garden, and that fact has to be duly considered. The subject of food for birds is treated in another few pages and makes interesting reading; and the book concludes with a reference to the work done by the institution, from which the reader can gauge something of the labours of its well known Director, Professor Sargent, and the author himself, which have been expended on making the Arnold Arboretum what it is to-day.

The volume undoubtedly fills a niche in horticultural literature, not only on account of the story of the Arnold Arboretum, but for the large amount of useful and general information it contains, so admirably set forth in a lucid and simple yet captivating style. A word must be said about the fifty full-page illustrations, which rank as high as the text. They are fine pictures, and what the words may not clearly describe the illustrations certainly do. The book, in addition, is excellently printed throughout and free from those blemishes which often mar the publication of such a volume.

PUBLICATIONS RECEIVED.

"Adam's Garden."—The cultivation of vegetables, tomatoes, rhubarb and small fruits. By L. E. Fox, with a prefatory note by Mr. F. J. Chittenden. (Longmans, Green and Co., Paternoster Row, E.C.4, price 2s. 6d.) A compact and handy little manual, written in a simple and lucid style which can be thoroughly recommended to those whose gardening duties are carried out in their leisure hours.

"The Garden Register," by Marion Cran. (Herbert Jenkins, Limited, 3, York Street, S.W.1).

"Garden Receipts," sixth edition, enlarged, by Higgot Owen. (Crosby, Lockwood and Son, Ludgate Hill, E.C.4, price 2s. 6d.) This is a practical booklet for a practical man. It contains a useful collection of remedies and methods of treatment for the many diseases and pests which attack garden plants, in addition to many other helpful hints.

"In Praise of Birds," described and photographed by Charles E. Raven, D.D. (Martin Hopkinson and Co., Limited, Covent Garden, W.C.2, price 14s.) A book which all bird lovers will find both interesting and instructive. Written from the amateur's viewpoint.

"Lundy: Its History and Natural History," compiled by Lewis R. W. Lloyd. (Messrs. Longmans, Green and Co., price 12s. 6d.) An interesting account of the history, including the geological, entomological and botanical aspects, of Lundy, which will prove a valuable guide to all intending visitors to the island.

"The Lorette System of Pruning," by Louis Lorette. Translated by W. R. Dykes. (Martin Hopkinson and Co., Covent Garden, W.C.2, price 7s. 6d.)

TRADE NOTE

A NEW FLOWER PRESS.

ONE of the hobbies which generally appeal to all gardeners, and many others who have a passing interest in flowers, is a means of preserving blooms of a certain flower, or, perhaps, the whole plant. There are many ways of pressing and preserving floral specimens, as botanists and collectors all know; but all these are capable of being improved. A new patent press, known as the Chelsea Flower Press, has just been sent in, and it certainly seems to provide a satisfactory means of preservation without deterioration of the specimen setting in. It consists of layers of cotton-wool placed between wire frames, over which one or two straps, depending on the size, can be affixed to keep the whole tight. The flowers are simply placed between the layers of cotton-wool, and it is advisable to put the frame out in the sun or before a fire when pressing, as the specimen dries more rapidly. The benefit of this method is that the pigment or colour of the blooms is preserved as in life, which is, in many cases, expedient or desirable. The frame is supplied in sizes from 5½ins. by 7ins. to 14ins. by 12ins., the latter size being of especial use to botanists. They can be obtained from Messrs. Philip and Tacey, Limited, 69–79, High Street, Fulham, S.W.6.

CATALOGUES RECEIVED.

Mr. T. Smith, Daisy Hill Nursery, Newry.—Hardy Bulbs, etc.

Messrs. Stuart and Co., 13, South St. Andrew Street, Edinburgh.—A well illustrated and useful list for all gardeners who wish for a good show next spring.

FOREIGN.

Messrs. Walter Blom and Son, Hillegom, Holland.—A useful List.

Messrs. C. G. Van Tubergen, jun., Haarlem, Holland.—A valuable and well illustrated catalogue, containing numerous varieties of all classes of bulbs.

Messrs. Anthony C. Van der Schoot, Limited, Hillegom, Holland.—Bulb Lists, including tulips, hyacinths, daffodils, etc., profusely illustrated.

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THE GARDEN

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WHITE FLOWERS IN THE WOODLAND

WHEN a garden adjoins woodland, or any kind of copse where the soil is cool or even damp, many will be the opportunities for beautiful wild gardening. There are so many plants suitable for such places that the difficulty will be to make a choice, for in this kind of planting, where it is desirable above all things to preserve those characters of tranquillity and mystery that are the chief charms of woodland, these may easily be destroyed, or at least disturbed, by the presence of such a number of flowering plants as would be bewildering by constant attraction of attention. It will be enough in such a space as an acre of ground if there are something like three main plantings of fairly large growths, and that even these should not all be in flower at the same time. It is just this restraint as to numbers of kinds that is so restful and enjoyable in the actual wild, whether it is the wood of primroses of April or the bluebell wood of May or the shaded hillside of foxglove of June, or the wide stretches of autumn-flowering grey-purple ling. So also it will be if, in some one acre of the woodland, we plant goodly stretches of white foxglove, and, to follow it, bold drifts of one of the tall campanulas of the alpine woods, either a good white variety of C. persicifolia or one of the handsome white forms of C. latifolia. The purple forms of either are also good, but the white are better, and it is the white to which these notes chiefly refer. Then there is the graceful native plant Epilobium angustifolium. The rosy colour of the natural plant is excellent on the outskirts of some wood of Scots pine, but it is the white that is the best in summer leafing woodland. It is not quite so rampant as the type plant, just a shade more refined in growth and whole aspect. It is also a valuable plant to have in the reserve garden to cut for the house.

Wide grass paths, anything from 7ft. to 12ft. in width, pass through the wood; sometimes straight, leading up to a fine tree from which other such paths radiate, while others, again, move in easy, sweeping lines, so that a certain length only is visible, and a slight turn displays a different picture. It is in relation to these especially that the groups of tall white flowers are planted. Along the path edges are good masses of common hardy ferns of the bolder kinds—male fern, dilated shield fern, and, in the moister places, lady fern, royal fern (osmunda) and other free-growing genera with an undergrowth of water forget-me-not. There is no end to the delightful inventions that may be made in such ground, to be varied or amended from year to year as conditions change and as new ideas present themselves. There is no doubt that, in time, new introductions from China and elsewhere will prove themselves invaluable for woodland treatment, where they may prove to be more at home than in the garden.

WHITE FOXGLOVES IN WOODLAND.

GERTRUDE JEKYLL.

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

ANDROSACES, by F. Barker.
LUPINS AND DELPHINIUMS, by R. W. Ascroft.
STRAWBERRY CULTURE, by I. Hawkes.

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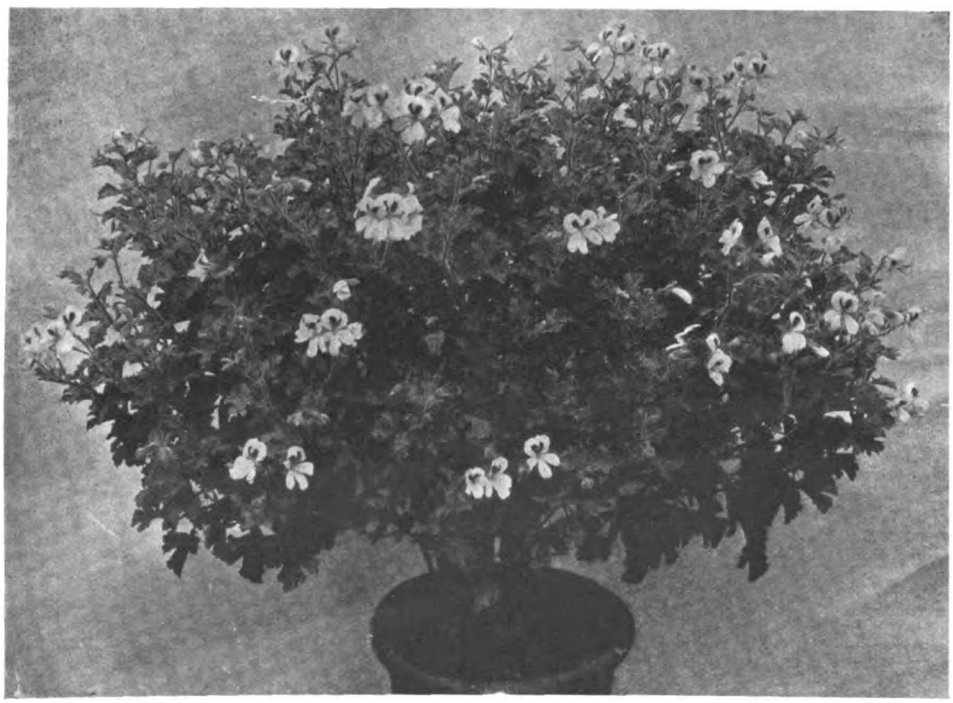
FRAGRANCE IN THE GREENHOUSE

UNDER glass one is always more aware of perfume than is the case in the open air. To begin with, it is more confined; it is stiller, and therefore the odour hangs longer upon the atmosphere. Indeed, without any fragrant flowers in bloom, there is always about a greenhouse or stove a perfume that rises from the soil and moist atmosphere that in itself is attractive, but how much more so when the favourite cherry pie or carnation is adding its quota to the whole. There is a special fitness about a fragrant greenhouse that seems more necessary even than in the sunlit borders, especially when one remembers that it is here that we must apply for the majority of our fragrant blooms, during winter at any rate.

As with the hardy garden, our perfumes are of two kinds: those that are given off spontaneously by the flowers themselves, and those that are only released when the plant is brushed against or its leaves bruised by pressure. The greenhouse is a far commoner adjunct than the stove, so that it may be well to deal first with the plants that may be grown here. The cherry pie, or heliotrope, mentioned above is not suitable for the cooler class of greenhouse; but, where a steady temperature of 55° is maintained, no plant can be found to excel it as a roof or rafter plant, for it is scarcely ever out of bloom and one may find a nice little bunch of the fragrant sprays practically throughout the year. As a standard or bush plant in the smaller houses it is equally good, though for continuous flowering there is nothing to excel an old specimen with its roots planted out in the border and allowed to run, as regards the top, more or less at will. There are, of course, many varieties of this varying in colour; while, too, some are even more fragrant than others; two that can be especially recommended being Bouquet Perfume, lilac blue, and Lord Roberts with large heads of metallic violet. Those who appreciate white flowers will find Jean d'Arc suit their taste exactly.



PELARGONIUM PRINCE OF ORANGE IS APTLY NAMED.

Carnations, of course, fill a large share of the winter demand, and by striking cuttings and stopping the plants at different seasons one may have these plants in flower throughout the year. Culture cannot be dealt with here, but one point may be emphasised in connection with taking the cuttings, and that is the need for taking the best. When the plants begin to branch from the base these push out from the stem, then more branches evolve above them and finally still more over these. It is the middle shoots that make the best and most floriferous plants; these are invariably the firmest, and therefore they root and grow most satisfactorily.

The lily of the valley is only a temporary occupant of the house and retarded crowns are used for forcing in winter and early spring, this being a very simple process where adequate heat can be maintained, and providing batch after batch of the delicate flowers within a very short period after potting or boxing. Spring, early February to nearly the end of April, is abundantly catered for by the Dutch hyacinths and the delicious freesias; while, by the earliest planting, it is possible to procure a few of the latter by Christmas and to forestall the hyacinths by a batch or two of their Roman brethren. A curious summer annual is Martynia fragrans, and this grows quickly and readily from seed when sown in March. The plants reach a height of 15ins., with broad wrinkled leaves and large flowers, something like a mimulus in form, but of a curious fawn brown colour with beautifully spotted throat. These are powerfully fragrant, with a perfume that is absolutely unlike anything else in the flower world. Another plant that provides delicious fragrance is the verbena, and with this one may take one's choice of propagating by seeds, treated as half-hardy annuals, or where named kinds such as Miss Willmott are favoured, by cuttings. Both are good, but the risk of disease is minimised by raising seedlings, and the purpose of fragrance is equally well served.

Annual daturas give good flowers that, when in bloom, leave no uncertainty on the question of perfume, a single bloom being sufficient to scent a large house. A neat grower, worthy of special praise, among these is D. cornucopiæ, with large deep purple flowers; while meteloides, which reaches a height of 3ft., with handsome white flowers tinged with violet, is another capital plant that is very easy to grow. A noble perennial form capable of reaching the dimensions of a small tree is Datura Knightii, sometimes known as brugmansia and angels' trumpets. This may be stood outdoors during summer and gives a splendid subtropical effect from May to October, for the bold leaves have a distinctly foreign look and the immense pendent white flowers, which distribute their colour far and wide, are certain to attract the attention of even the least observant of non-gardening visitors.

Acacia armata, with its fluffy little yellow balls and neat dark green foliage, is sure of a welcome in spring on account of the attraction of the plant itself, but when we add to this its sweet spring-like perfume, it is certain to find a permanent home with us. Beautiful shrubs, indeed, crowd upon us during these earlier months of the year, one of the most popular being the old golden Genista fragrans that literally smothers itself with its wee golden sprays which distribute their perfume far and wide. The charming Australian boronias, too, with their small shallow cup-like flowers are gaily blossoming and pervading the air with their subtle odour, making a striking and distinctive picture that adds not a little to the charm of the house. Two of the most lovely species of this are elatior, in rosy carmine, and megastigma, in maroon purple and bright yellow inside. Daphnes indica, rubra and alba are worth specialising and, once again, add to the array of spring-blooming shrubs. These, unlike the hardy varieties, are evergreen, and the lovely rose red or white flowers are most deliciously perfumed. For the cold house a tub of the old-fashioned myrtle cannot be surpassed, and this may spend the summer in the open air if wished, to the great advantage of the plant. Flowering in this case takes place in autumn, and where again brought under cover before the frosts, will continue to open its buds half way through the winter.

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A good length of side stage might well be allotted to the scented-leaved pelargoniums, for these form a host in themselves and are ideal for culture in the cool house, where they demand no more than to be kept moderately moist and in the lightest possible position. Search will reveal an extraordinary number of these, every one of which is distinct and interesting and worth procuring. Capitatum has foliage scented like the petals of the rose. Cloringda, too, is most refreshingly perfumed, with handsome deep green leafage, added to which are the qualities of profuse production of large deep rosy cerise flowers and a very vigorous habit. Crispum is valuable for the citron perfume of its leaves; while another notably fragrant species is Duchess of Devonshire, with flowers that are very attractive —blush white heavily blotched with crimson. Fair Ellen is of the oak-leaved type; while grossularioides, with gooseberry-like leaves, is prettily variegated. Lady Mary is nutmeg scented, Lady Plymouth highly scented and charmingly variegated, Lady Scarborough with leaves remarkably like those of the parsley. Little Gem, in addition to its use in the greenhouse, has rose flowers and a neat habit that renders it very useful for edgings outside as well. Pretty Polly is prominent for its almond fragrance, while Prince of Orange—fitting name—is deliciously reminiscent of that fruit. The old tomentosum, with its powerful aroma of peppermint and soft downy leaves, is never likely to lack admirers, while Shottesham Pet reveals the fragrant odour of the filbert nut. This is a sufficiently representative collection for the ordinary house, though it might be widely extended where more are desired, for South Africa especially is very rich in many splendid species.

Writing of fragrant foliage brings to mind one of the grandest of all these plants, the lemon-scented verbena, which is really Aloysia citriodora. This as a great bush in a large pot is supreme for cutting purposes and one of the earliest of all plants to grow. Given the culture afforded to the fuchsia, including the reduction of water during the winter months, and the hard cutting back in spring, you will have nothing to complain of from your lemon plant. Indeed, there is only one criticism that could be levelled against it, and that is that it is rather prone to straggle; but this may be remedied by regular and continuous stopping of the young growths.

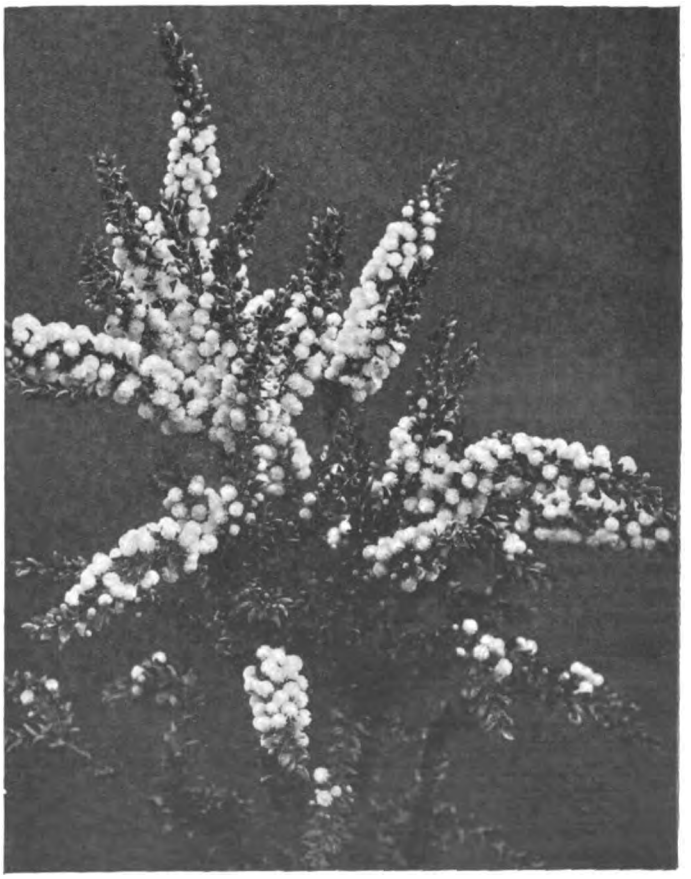
One of the most magnificent bulbs that can be grown in the cool house is unquestionably Hymenocallis callathina, the sea daffodil, while its delicious perfume deserves an equal meed of praise. This is a summer flower of large size and exquisite whiteness, while the charming form absolutely beggars one's descriptive powers. The virgin whiteness is absolutely untouched, save by a green line down the centre of each petal. Our old friend the cyclamen, so long valued for its beautiful flowers and winter-blooming qualities, has recently added to its other charms that of fragrant perfume. The Sheepwell strain is really fragrant and all the usual colours are included, while the habit and freedom with which the flowers are produced leave nothing to be desired. The common eucalyptus might not appeal to all as a fragrant subject, but the variety citriodora would not meet adverse criticism on this account. The crushed leaves are delightful and it is readily and speedily grown to a decorative size from seed.

Passing from the greenhouse to the stove, one still finds no lack of fragrant flowers, even the orchid house possessing its perfumed forms in the persons of Stanhopea, etc. Everyone knows the beautiful Stephanotis floribunda with its clusters of pure white waxy flowers, and it is doubtful if a better climber of moderate dimensions can be found where space is rather restricted. One scarcely needs to praise its perfume, for the scent distilled from the lovely flowers is world famous and speaks for itself. A more gorgeous and vigorous grower that is scarcely less familiar is the Allamanda, of which the finest species is Hendersoni. This blooms from every point and bears deliciously fragrant flowers, 3½ins. to 4½ins. in diameter, thus giving a very noble appearance when seen from beneath. Delightful for suspension in square wooden baskets or pans is the dainty Hoya bella, a very different plant from its better-known relative "carnosa." Bella does not climb but forms a small bush-like plant with short branches and similar shining green leaves, although these are on a greatly reduced scale. One fact in connection with its culture should be noted, the soil—which should consist of a mixture of peat and loam—must be used in a lumpy condition and not made too fine. The Amazonian lily, Eucharis amazonica, is one of those established favourites that is never likely to lose its popularity,

ALLAMANDA HENDERSONI IS VERY FRAGRANT.

while the beauty of its widely expanded white flowers and the unsurpassable perfume of these is in no need of comment.

H. W. CANNING-WRIGHT.



ACACIA ARMATA IS ONE OF THE MOST ATTRACTIVE OF THIS POPULAR GENUS.

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FAIR CROWNS. I—OLYMPIA AND HERCULES' OLIVE

"AT the Olympic Games, an olive-crown or garland; at the Isthmus, one of pine; at the Nemean, one of parsley; at the Pythian, apples from the trees sacred to Apollo; and with us, at the Panathenæa, olives from the tree of Minerva. . . . What do you smile at? You think our prizes small, I suppose?" So queries Lucian's Dialogist, Solon. Referring again to the Greek athlete and his awards, he exults: "How they will fight for their wives and children, their religion and their country [those] who, naked and unarmed, show such an ardent thirst after victory when they contend only for apples and wreaths of olive!" A similar thought seems to have alarmed the invaders under Xerxes, when Greek deserters after Thermopylæ, explained to him the Olympic Games and the fierce rivalry for the sole reward—a wreath of wild olive. "Heavens! Mardonius," cried out a Persian warrior, "against what kind of men have you brought us to fight, who contend not for wealth but for glory?"

It was quite true, the earlier costly prizes of the local festivals at Olympia, supposed to have originated as funeral contests in honour of Pelops, had been replaced by this "precious olive." This change was also adopted by the re-organisers of three other competitive gatherings, out of which developed those famous Pan-Hellenic competitions known as the Pythian, Isthmian and Nemean games. These four great and sacred meetings were, therefore, called the "Games of the Crown," to distinguish them from the lesser athletic contests where prizes of money and valuables were still offered. Simple and poor as this leafy crown might seem to be, nothing was more treasured. That youth who reckoned time by Olympiads or Pythiads, who trained for weeks under the whiplash of his instructor, and finally bound his hair with the fillets of victory and bent his modest head to receive the leafy chaplets of olive or pine, or celery, or laurel, bestowed at Olympia, the Isthmus, Nemea or Delphi respectively, had won honours valued far beyond riches. Roman emperors longed to wear the wreaths also. One of the proudest days in Nero's grotesque life was that on which he entered Rome, clothed in purple, wearing the Olympic crown upon his head, and carrying that of Pythia in his right hand, while the rest of the thousand and odd crowns that had been awarded by the lax hands of judges in the later games were borne before him.

However, the wreaths were not really all the rewards. Not only was the lucky winner pelted with ribbons and flowers like a *prima donna* at the moment of victory, but outside of the Stadium other gifts awaited him, such as civic honours (since each delegate from a Greek State was regarded as its personal representative), and other concessions of value. Even a portrait statue might be erected in his honour. Probably, after wearing his chaplet at the evening festivities he took it home and dedicated it to his local god, hanging it up in the deity's temple; or to that god whom he thought might have helped him to victory, in the personal way that the Greeks believed possible. Each leafy spray of the verdurous crown would certainly keep green in his memory that personage or deity whom the numerous legends connected with the founding of the various games—legends which the earlier contestants probably thought were pure history.

What Olympic victor, for instance, could forget that the heroic Hercules had decreed the games? He could choose to believe the story that the hero, after cleaning the Augean stables by turning the River Alpheus through them, afterwards rested by its brink in an olive grove. There he and his companions made their rustic beds from the luxuriant foliage, and in the friendly contests of skill in throwing weapons, wrestling and the like, had playfully crowned the winners with branchlets of the same trees, including himself, and decided to renew the sports every year. Later, Hercules marked out a grove among these olives in honour of his father Zeus. This grove was supposed to have been destroyed to make room for the great temple of Olympian Zeus, whose olive-crowned statue was a Phidian masterpiece, and the corrupted Greek name for a grove survived in that of the squared space about this temple in the heart of Olympia, known as the Altis. But some said that the grove had been planted by Hercules, who, pursuing the hind of Diana, followed her golden antlers through the country of the Hyperboreans, somewhere north of the Danube, into the ". . . wan, grey olive-woods, The fittest foliage for a dream." They said he brought some home with him to plant about the altar of his father, and to shelter the pilgrims on the "thronged and sacred lawn of Zeus," then lying scorched under the blazing sun of southern Greece.

A lone, wild olive tree standing on the Altis near the temple of Zeus was known as the "Olive of Fair Crowns," and was presumably one of the very grove marked out or planted by Hercules. Whatever its origin, one can imagine how often hopeful, if weary, youths in training glanced at this tree and dreamed of the day when that boy of pure Greek parentage, and with both parents living, should come out just before the Olympic games, and cut, with a golden sickle and much ceremony, sprays from this olive—sprays which would be woven into the fair crowns laid on the gold and ivory table to entice the eye. If his gods were favourable, why should not the purple-robed judges "cast above his eyelids, around his locks, the grey-coloured ornament of olive"?

H. INGERSOLL.

THE LACE WING FLY

THE rearing of the lace wing fly might prove a profitable undertaking for horticulturists and gardeners generally, considering her helpful work in suppression of plant aphis. But the larva of the lady-bird is far better known in this capacity than any of the lace-wings, although the latter are numerous in Britain and are mostly aphis-devourers.

The lace-wing fly emerges in the month of May from an amazingly small white silken cocoon which has been cunningly concealed throughout the winter months under the fold of a leaf or in an equally obscured nook.

Once seen, the beauty of the lace-wings is unmistakable. All the species have slender bodies, differing slightly in size and colour: *i.e.*, tender green or brown. The wings are slightly longer than the body and richly veined, also covered with a lovely sheen which fades after death. The antennæ are long and tapering, and their eyes of a striking metallic hue. The eyes of the species named chrysopa, for example, are like hemispheres of gold.

Early in June, the female lace-wing seeks a suitable spot for depositing the eggs, and can often be seen at this time of the year, posing in contemplative attitude, waving her long antennæ. Her methods are both remarkable and unique.

THE ADULT INSECT.

Just before the eggs are laid, she exudes from her body a drop of gluten on to the selected spot (usually leaves or twigs infected by aphis), then, by raising her hind body to its utmost limit, the gluten is drawn upwards as a thread, and before this has time to harden in the air an egg is lodged on the top. She repeats this action for each single egg, and, the insect's body being her gauge, these unique stems are of regulated length. When the eggs are grouped three and four together (as by some species), united at the base like a bunch of cherries, then one drop of gluten serves that group. These eggs will be very difficult to find; either in single or double rows, or in groups, placed on leaves and branches of elder or other trees and plants abounding with aphis upon which the grub will feed when hatched.

These eggs are so minute and delicate that even scientists have mistaken them for fungi, being not unlike the apple-fungus, with small oval-shaped greenish-white heads and transparent stems about three-quarters of an inch long.

Evidently the design of these foot-stalks is to protect the eggs from the attacks of the lady-bird larvæ, etc.,

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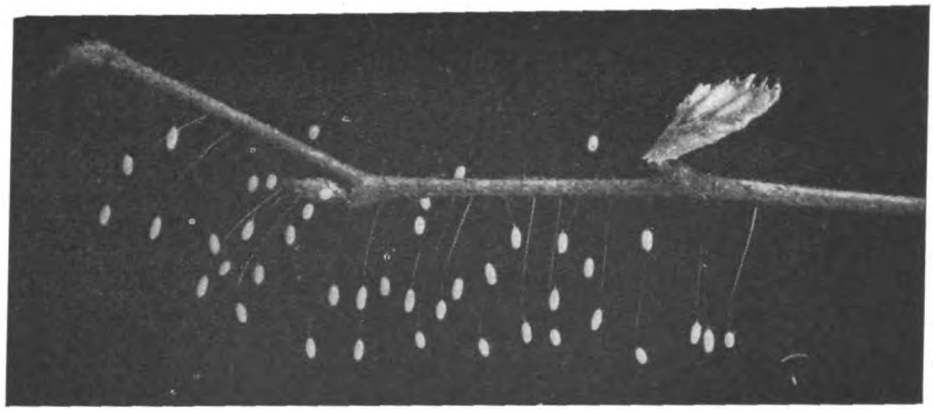
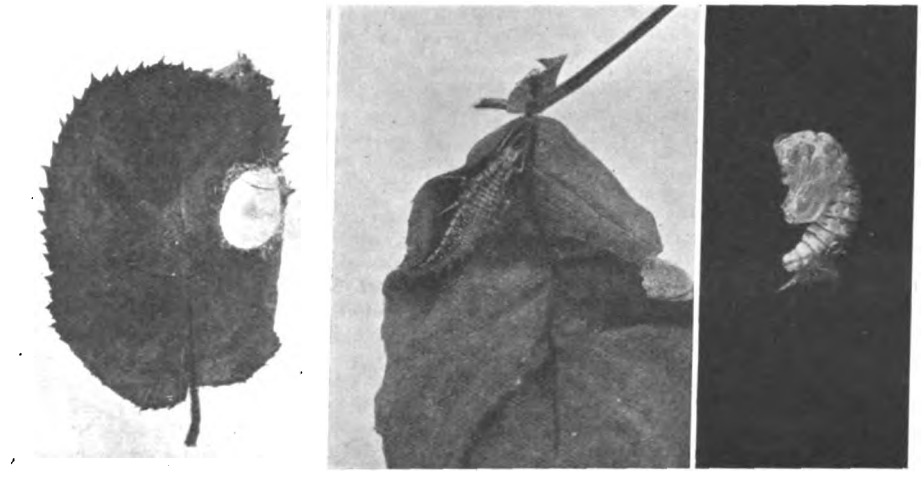
which frequent the same situations. Also the stems are too smooth and slender for the enemy grubs to climb—this has been proved by experiment. David Sharpe has given us very interesting diagrams of the specially constructed claw of the larva of the lace-wing fly, as seen under a powerful microscope.

When, after about ten days, these eggs are hatched, the grubs are no larger than pin-heads, but quickly attain full size and attack the aphis provided by the mother's foresight. One chrysopa larva was captured in Kent last summer and brought to London on August 12th. He first attracted the writer's notice by scuttling across the table on which flowers recently brought in from the garden had been lying.



THE EGGS MAGNIFIED ABOUT THREE TIMES.

In appearance, it was a phenomenal round bundle of fluffiness (the size of a very small lady-bird), mysteriously propelled, till the magnifying glass revealed the camouflaged body of an insect with six tiny legs, and the "bundle of fluff" proved to be fragments of wings and other particles of aphides, the insect's victims; mandibles not unlike the forceps of an earwig could be seen just projecting beyond this gruesome burden. The insect was kept in an empty matchbox and given occasional runs upon aphis-infected leaves when these could be obtained, and its intelligent manœuvres were watched with intense interest: magnifying glasses were at a premium. And this is what took place.



COCOON. LARVA, OF CHRYSOPA FLAVA. AND PUPA

This larva "nosed" its victims after the manner of a fox-terrier scenting rabbits, moving its head from side to side. Having found his aphis, he speared it with a special apparatus in the jaw (called a sucking-spear), sucked the morsel dry, and then, with a clever jerk of the head, flung the remains on to his back with marvellous precision, and hurried on in search of more prey. Green aphides were not easy to obtain in London, and, as the insect appeared to be pining for a more natural life, he was liberated in Kensington Gardens early in September upon some rose branches overhanging the gates of the Dutch garden.

The results were satisfactory, for the larva was soon seriously engaged, actively searching under the leaves, spearing and sucking, etc., until he disappeared from view.

SOME TIBETAN PRIMULAS

BY F. KINGDON WARD.

MR. KINGDON WARD, THE WELL KNOWN PLANT COLLECTOR, DESCRIBES THE SPECIES OF "SIKKIMENSIS" PRIMULAS FOUND BY HIM IN 1924. IT IS TO BE HOPED THAT THESE WONDERFUL PLANTS WILL SOON BECOME COMMON IN GARDENS.

EVERYBODY knows Primula sikkimensis, and most gardeners are acquainted with the "sikkimensis" primulas in general—a very natural group which includes also the well known P. secundiflora. They are easily recognised by their usually terminal umbels of drooping flowers, and by the fact that, seen in profile, the line of the corolla is continuous with that of the calyx. Botanical characters are the long narrow capsule projecting far from the calyx, and the oval or slightly coffin-shaped—but not angular—seeds, flattened on one side.

The "sikkimensis" primulas are closely related to the "candelabra" primulas, though one need never confuse them, bearing in mind the above-mentioned diagnostic marks. Both have much the same habit, sending up a single tall flower scape from a crown of large leaves; both rejoice in open meadows, more or less marshy, or along the banks of streams and the margins of woods; both tend to produce whorls of flowers—in the "candelabra" section this habit is characteristic and a good diagnostic mark, but it is by no means rare in the sikkimensis section; and finally, both are divisible into two colour groups, (i) yellow-flowered and (ii) purple-flowered.

But there the resemblance ends, and it will be seen that it is, after all, superficial. The "candelabra" capsule alone is decisive—spherical, enclosed in the calyx, instead of narrow cylindrical, projecting; the flower outline, too, is distinct, the corolla limb making an angle with the line of the calyx, and the flowers never drooping; lastly, the "candelabra" seeds are small angular cubes, like tiny lumps of sugar, and much darker in colour than "sikkimensis" seeds.

It is a well known fact that the "candelabras" hybridise freely, and consequently for garden purposes there is probably no other class of primulas to touch them. Undoubtedly they are the garden primulas of the future. Fine, sturdy, upstanding plants, they are perfectly easy to cultivate, taking care of themselves, crossing among themselves, and seeding freely. The purple-flowered PP. japonica, pulverulenta, Beesiana and Burmanica, and the yellow-flowered PP. Smithiana, Cockburniana, Bulleyana, helodoxa and chungensis can hardly be beaten except by their own hybrids; the flame, salmon, maroon and peach coloured crosses are as bewitching as they are bewildering, and form sheets of indescribable glowing light by the pond or along the stream bank. I have always felt that,

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as a group, they have only one serious rival, the "sikkimensis" group. As already mentioned, these are closely allied, but easily distinguished; they also contain a purple-flowered and a yellow-flowered group.

But here comes the difference—and, from the horticultural point of view, it is an important one: no one has ever succeeded in crossing a purple-flowered "sikkimensis" with a yellow-flowered one, and it is not from want of trying, either. The purple cannot be broken down; it appears to be as stubborn as the yellow—the two refuse to hybridise.

I do not maintain that the "candelabras" hybridise in nature. They may do so, but I have never seen it, nor should I expect to do so once in a score of years. For the illegitimate seedlings, where hybrids and species are coming up side by side, are sure to be decently suppressed—in a closed formation, of course, *no* young plants could survive.

Moreover, the species, yellow and purple, tend to keep to their own localities and to flower at different times. This is particularly true of the "sikkimensis," though I have seen the yellow-flowered P. sikkimensis and the purple-flowered P. secundiflora flowering by the thousand—a sulphur sea streaked with blood.

But in the garden, where every seedling gets a fair chance, it is a different matter; here the hybrid can compete on equal terms with the species, and is, in fact, often given exceptional treatment, eliminating all competition. And yet the purple-yellow "sikkimensis" cross has baffled the experts.

PRIMULA SIKKIMENSIS AT 12,000 ft. ON THE FRINGE OF MEADOWLAND ON THE TIBET BORDER.

To return to our "sikkimensis" section, we find a Chinese and a Himalayan representation, though recent exploration has shown that these areas are by no means isolated.

The section is represented in Sikkim only by P. sikkimensis itself, and the late Professor Bayley Balfour stated at the Primula Conference, in 1913, that no purple-flowered species was known from the Himalaya.

Western China has given us eight or ten species, however, both yellow and purple flowered, of which we may mention P. pseudosikkimensis, which, in so far as it differs (if it does) from P. sikkimensis, is an inferior plant; P. secundiflora—from which P. vittata may differ in the herbarium, but does not do so in the field; P. flexilipes and P. firmipes, which are dwarf forms; P. reticulata, which is little more than an anæmic P. sikkimensis; P. microdonta; and, on paper at any rate, one or two more. So much for the known, or alleged, Himalayan and Chinese forms.

Let us now turn to Tibet. In 1904 there was collected, near Lhasa, by Mr. Walton, a member of the Tibet Mission, a primula of the sikkimensis type, to which Sir George Watt attached the name P. Waltoni, though the plant was actually described by the late Professor Bayley Balfour much later. (See Notes, R.B.G. Edinburgh, No. XLI.) The species is represented only by two sheets in the Calcutta Herbarium, and the flowers are described as violet. No seed was collected.

In 1923 Mr. G. H. Cave of Darjeeling sent to Edinburgh seed of a "sikkimensis" primula collected in the neighbourhood of Gyantse. This has recently flowered at Edinburgh, and has been referred to as P. Waltoni; when I saw it in flower, I recognised it as closely allied to a series of coloured "sikkimensis" primulas collected by us in Tibet in 1924. It has the typical sikkimensis foliage and flower, but the corolla is a sort of crushed strawberry colour with a well defined band of cream-white meal painted over the inside, leaving only the lobes free.

These highly coloured sikkimensis primulas occur abundantly in the alpine meadows of Kongbo Province on both sides of the Tsangpo. There is a wide range of colour, from violet through maroon, purple and sulphur to pure white; but, whatever the ground colour, there is always the same thick layer of cream powder on the inside of the corolla, and all are fragrant.

The important point to notice is that these colours occur mixed in the same meadow, and in varying shades, though it not infrequently happens that one colour predominates in one locality, or even occurs to the exclusion of other colours. On one occasion we passed through a meadow where grew thousands of violet-flowered plants only, so that it was a simple matter to collect seed of that form, and keep it apart; it will be interesting to see whether it comes true.

Usually the colours were so mixed, however, that no attempt was made to separate them; it would have required an elaborate system of marking individual plants, and that scarcely seemed worth while, except in the case of the rarer whites, of which a few plants were marked to make certain that seed was secured. But will they come true?

Tibet, therefore, offers us, if not purple-yellow hybrids, at any rate flowers of all colours; and whether these are hybrids or not hardly matters. There should be no difficulty in making this group hybridise, certainly among themselves, possibly with pure yellows and purples, which also occur in Tibet.

We are justified, therefore, in expecting great things from these coloured "sikkimensis" primulas, which ought to prove just as easy in cultivation as P. sikkimensis itself; attractive as they undoubtedly are, they open up even more alluring possibilities, and will probably share with the "candelabras" the honours of the future as garden plants for everyone. Nor are these the only "sikkimensis" primulas in Tibet. Though P. sikkimensis itself does not occur, it is replaced by two fine yellow-flowered species, the "giant cowslip" primula (P. Florindæ) and the "moonlight" primula, an exquisitely scented plant; while the purple-flowered group are further represented by the fine "ruby" primula. The dwarf species of the flexilipes type are also represented by dwarf alpines.

If we regard Tibet as the original home of these plants, there is little difficulty in understanding their present distribution, and the occurrence of identical, or almost identical, species in places so far apart, and as botanically isolated, as Sikkim and Yunnan, or even Kansu; for they would radiate out from the Tibetan plateau, east, west and south, over the mountain passes. In Tibet they are on internal lines of communication; and it is remarkable how widely these plants are distributed on the plateau itself, from Gyantse in the south to Lhasa in in the north, thence eastwards down the Tsangpo valley for two hundred miles to the entrance of the great gorge.

We might even explain this "sikkimensis" colour complex on the facts of distribution.

In Sikkim we have P. sikkimensis, and in China P. pseudo-sikkimensis (practically the same thing) and P. secundiflora. These may be regarded as fixed species, sprung from the same

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THE MOONLIGHT PRIMULA ALONG WITH IRIS SPECIES.

original Tibetan stock, which consists of species in a state of flux, or incipient species. If our coloured species are something like the original stock, we may be able to pick out reds, violets and purples in a nascent state, as it were, and by crossing produce a fine range of colour, from infra-red to ultra-violet. But this does not explain why the "candelabras" cross so freely at home, for, though there are no Sikkim species, the Chinese species seem fixed enough. They scarcely reach the Himalaya proper, though the occurrence of P. chungensis—the only "candelabra" we found in Tibet—north and south of the Tsang-po bend, is curious; I discovered this species originally north of Likiang, 500 miles east of this point.

The following is a list of the "sikkimensis" primulas collected by us in Tibet last year:

K.W. 5746 ("Moonlight" Primula). Height 18ins., flowers sulphur, rather large, very fragrant. The first to open, in early June, lasting till the middle of August, but at its best in July. Forms sheets covering the wet pastures at 10,000–12,000ft. in a certain valley, but apparently local. There is a dwarf alpine form, probably collected under the number K.W. 5906. I am not sure whether this is a new species or not, but at any rate it is not in commerce. Seeds germinating freely.

K.W. 5781 ("Giant Cowslip" Primula). Height 3–4ft., flowers cowslip yellow, in an immense mop, about sixty to eighty, fragrant. Opens towards the end of June, continuing to flower till the end of August. Leaves very large, petiolate, resembling those of Caltha palustris, Grows in running streams, and forms vast colonies on steep bog slopes where the water is moving freely, always under trees. It is a true woodland plant. Quite the finest primula we found and a very distinct species, which I have described under the name P. Florindæ.

K.W. 5818.—This is the highly coloured variable meadow plant. One packet of seed collected under this number is the violet-flowered form. The other packets contain assorted colours, collected from three different localities, and from both sides of the river. It is a plant of the open sub-alpine meadows, where the ground is not especially boggy, and is found also in the alpine region on steep grass-clad slopes, and in glades in the forest, along the side of the path, between 10,000ft. and 13,000ft. altitude. Height 15ins., flowers all colours, fragrant. From mid-June to the end of July.

K.W. 5906.—This is probably mixed seed, containing an alpine form of the "Moonlight" Primula (5746) and a distinct species, of which there are herbarium specimens numbered 5906. Seed was collected from three localities. Dwarfs with bright yellow fragrant flowers, found on very steep alpine gravel slopes, among dwarf lonicera, rhododendron, etc.

K.W. 6094 ("Ruby" Primula).—Plant of 18ins., with flowers of a wonderful deep glossy port wine or ruby red, and unusually large. Found at 13,000–14,000ft. in high alpine meadows, and bordering small streams, among stones. Seed of this species was not collected till January 3rd, by which time most of the capsules were empty. Nevertheless, it has germinated freely. Flowers in August.

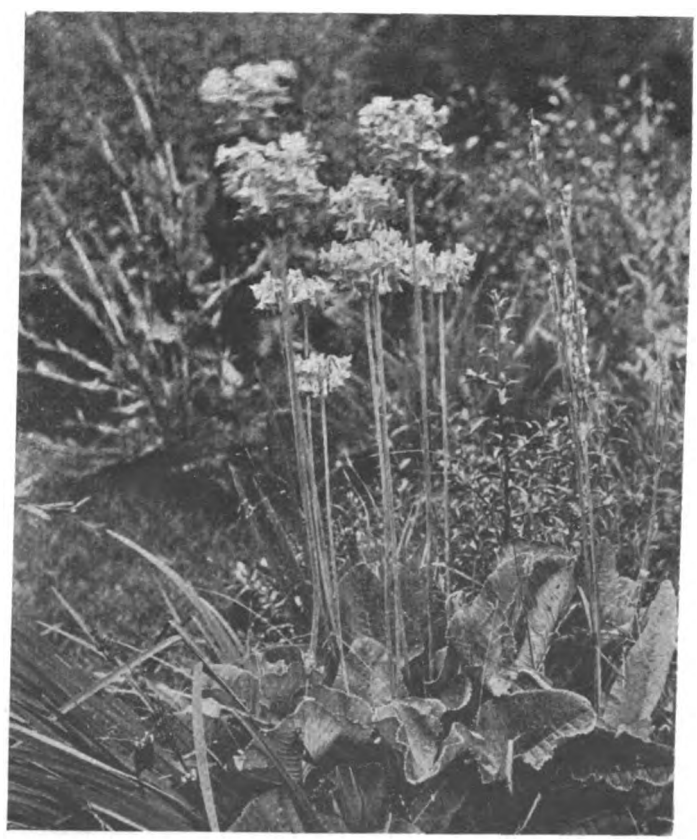
K.W. 6117.—This is a 2ft. plant closely resembling, if not identical with, No. 5818, but in white and yellow tones only. It is, however, remarkable in one respect, it normally produces three, and not infrequently four, whorls of flowers, like a "candelabra." It will be recalled that this is a good diagnostic mark of the "candelabra" section. But in P. Cockburniana there is a tendency to suppression of whorls, only two, or sometimes three, being produced (at least, in this country), as against six or seven in such species as P. helodoxa or P. Burmanica. And now we have a true "sikkimensis" not content with the two whorls as in P. vittata, but launching out into three or four, like a "candelabra." It is difficult to escape the conviction that the "sikkimensis" and "candelabra" primulas are descended from a common ancestor.

I might here refer to the two purple-flowered "sikkimensis" primulas, P. vittata and P. secundiflora. The late Professor Bayley Balfour distinguished them by their foliage, describing those of P. secundiflora as oblong elliptic, horizontal in a rosette, those of P. vittata as elongated erect. This was at the Primula Conference in 1913. The late Reginald Farrer, commenting on this, pertinently remarked that the Professor's own photographs rather reversed this!

Comparing them in a garden recently, I noticed that the flowers of P. secundiflora usually droop all to one side, while those of P. vittata hang all round the stem, and are nearly always in two whorls. But there is nothing to show that these are not merely growth forms, and, indeed, one can easily find connecting forms. Growing the two mixed up together in sufficient quantity, I would defy anyone to pick out which was which; personally, I regard them as one and the same.

K.W. 6430.—This is a plant I did not see in flower. Seed of it was sent me from Gyantse, where the plant grows along the irrigation channels. The colour is described as maroon. Evidently this is P. Waltoni, which is a plant of the Tibetan plateau.

Finally, our solitary "candelabra," K.W. 5682, Primula chungensis. It is a bigger plant than P. Cockburniana, growing 30ins. high, with bright orange flowers, not so blood orange as those of P. Cockburniana. It is a woodland plant, growing in deep shade, and flowering in June.



P. FLORINDÆ. THE "GIANT COWSLIP" PRIMULA.

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HERBACEOUS FLOWERS AT VINCENT SQUARE

HERBACEOUS and hardy plants formed the principal feature at the ordinary fortnightly meeting of the Royal Horticultural Society, which was held on July 28th last. The bright and warm colours of the phloxes and sidalceas were tempered to some extent by the more delicate tones of the carnations, roses and foliage plants. Among the chief exhibits were the stands of magnificent gladioli arranged by Messrs. Kelways and Messrs. Unwin. The rapid strides that have been made within the last few years in the improvement of this flower were clearly evident, if one could judge from the general habit, size, colour and floriferousness of the sprays exhibited. Year by year, novelties with some outstanding characteristics which single them out from the productions of previous years make their appearance, and one is left in a rather undecided frame of mind as to what the ultimate result will be. As with the sweet pea, so with the gladiolus, we await the arrival of a new type which will bring along with it new blood to be introduced into the older varieties. Then we shall witness a decided change; but meantime, the process is a slow one. Fruit, principally gooseberries in excellent condition, was in the capable hands of Messrs. Bunyards, Messrs. Laxton and Messrs. Hemsley. Considering the time of the season and the somewhat trying climatic conditions, the show was a most representative one.

Most certainly one could not fail to admire Messrs. Unwin's excellently arranged stand of primulinus gladioli. The general lay-out was quite an innovation in the method of staging. The spikes of really fine blooms were shown off to distinct advantage in tall spray golden vases and baskets, and the general effect was excellent. One of the most notable varieties, all of which were hybrids of G. primulinus, was Vermilion Scarlet, the colour of the medium-sized flowers being of deep scarlet and the petals of good velvety substance. Butter Boy (of a soft butter yellow colour) and Souvenir (deep yellow) looked well interspersed among the more delicate pink hues of Maiden's Blush and the glowing salmon pink blooms of Early Sunrise. The blooms were all in fine condition and the spikes were well flowered.

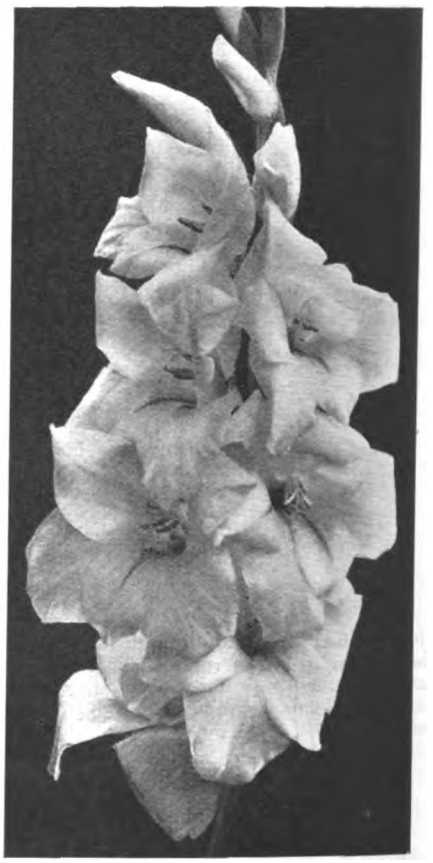
A magnificent and well arranged collection was also to be seen on Messrs. Kelway's stand. Messrs. Kelway's name is almost synonymous with gladioli, and one always looks forward to finding many interesting things in their collection, and certainly not in vain. Included in their stand was a number of the large-flowering varieties of recent introduction, among which were Beau Brocade, with large and handsome flowers of deep lilac purple colour; and Kelway's Painted Lady, white with a crimson blotch. In their new Langprim varieties were Lady Ada Fitzwilliam, of a salmon-yellow colour with an orange centre; Countess Poulett yellow shaded salmon; Lady Joan Verney, orange salmon; Pride of Huish, apricot yellow; and many others in all shades. With its extensive range of colour and handsome appearance and length of flowering period the modern gladiolus should be more widely grown in our gardens than it is, and these two exhibits, we hope, will serve to create an appreciation of the many fine points, especially brilliancy of colouring, which go to make the gladiolus one of our pre-eminent border plants.

Phloxes were well represented and formed quite a bright and varied patch of colour in various parts of the hall. Mr. H. J. Jones again had a magnificent exhibit, arranged in the form of a long oval carpet, in which the most notable sorts were Etna, F. A. Buchner, the large-flowered Thor and Eugene Danzanvilliers.

The Hon. Vicary Gibbs also staged a fine exhibit, and once again our congratulations are extended to Mr. Edwin Beckett on his successful cultivation and raising of several fine seedling varieties of merit, among which we noted Minnehaha, carrying large trusses of deep pink flowers with a deeper eye; Mrs. E. Beckett, pinkish white; Purple Emperor; Snow and Dairymaid, white. Another fine exhibit was that staged by Messrs. Rich and Co., Bath. Their collection included such varieties as Maréchal Foch, Titanic and Elizabeth Campbell.

Mr. William Yandell of Castle Hill Nurseries, Maidenhead, staged a fine exhibit of violas in great variety, which were much admired, in shades of yellows, purples, and even to the almost black colour of David Beatt. Although small in stature, many of the individual blooms are astonishingly handsome and very attractive.

Although gooseberries were intended to be the chief feature of the Show, there were only four exhibits of this soft fruit, two of which were very small. This was undoubtedly due to the fact that the gooseberry season is almost over. Messrs. Bunyard of Maidstone had the largest and most varied collection of gooseberries, and Mr. H. Hemsley of Crawley also showed some good specimens. Messrs. Bunyard staged over fifty different varieties, including representatives of the green, yellow, red and white types. Keepsake (green), Gunner and Sandwich Yellow (yellow), Napoleon le Grande and London (red), and Queen of the Trumps (white) were in good condition. Mr. Hemsley had some fine baskets of Crown Bob, Careless, Keepsake, Cousen's Seedling and Whitesmith. Mr. Frank Krant had a small exhibit of gooseberries and currants.



GLADIOLUS MRS. JAMES KELWAY.

THE ORNAMENTAL WINGED FRUITS OF DIPTERONIA SINENSIS.

Messrs. Laxton Brothers of Bedford staged an interesting exhibit of soft fruit which attracted much attention, owing to the new hybrid fruit—the Veitchberry—which was shown. This fruit is a hybrid betweeen the November Abundance raspberry and a blackberry, and it bears characteristics of both its parents. The berry is large, deep red in colour, similar to a mulberry, and is formed on vigorous growing canes which are almost self-supporting. The Veitchberry should prove of great value in the garden. The Worcesterberry, another hybrid fruit, was also shown by this firm. This hybrid has been produced by crossing a black currant and a gooseberry. Two well shaped varieties of gooseberries, Laxton's Green Gem and Laxton's Bedford Red, were shown on this stand.

Mr. E. G. Hunt of Barnstaple had a small but interesting exhibit of peaches and plums growing in pots. These trees were budded on the stock Prunus pumila, upon which

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Mr. Hunt is experimenting. The fruit was particularly fine and healthy and the growth vigorous. The union of the stock and scion was excellent.

In many districts water lilies have flowered well this year, especially those grown by Mr. Amos Perry of Enfield, who staged a collection of beautiful varieties, among which were nymphæas suitable for water of varying depths. Marliacea carnea, with thick blush pink petals; Escarboucle, with deep red flowers; Gladstoniana, a large white variety with conspicuous golden yellow stamens; together with Richardsoni, Mrs. Richmond and James Hudson, were some of the finest varieties shown.

An unusual and decorative exhibit was arranged by Messrs. Dobbie of Edinburgh Flowering and fruiting vegetables of all kinds were set up in bold groups. Large mop heads of flowering onions, sprays of seed pods of kales, cabbages and leeks, set off by flowers of such vegetables as carrots, celery and beans, made an effective exhibit. Messrs. Daniel Brothers showed large spikes of their shock-flowered larkspur in many shades, ranging from darkest blue to deep carmine. Mr. H. Hemsley exhibited several of his new hybrid sidalceas; and Mr. Lloyd of Croydon a group of hybrid begonias known as Lloydii hybrids, some of which were a soft pink colour.

Carnations and roses added to the brightness of the floral exhibits. Messrs. Lowe and Gibson of Crawley had several good new varieties of carnations as well as many of the older kinds, all of which were of first-class quality. Doris Trayler was a new border carnation with the sweetest clove scent; John Stobart, a white ground fancy with bright clear stripes of rose; and Dr. Stone an apricot and rose fancy. Such varieties as Laddie, Coral Glow, Cameron, Ed. Allwood and White Pearl came from Messrs. Allwood's carnation nursery; and Mr. C. Engelmann showed Mrs. Richard Gerrish, Vera, Sheila Greer and Red Laddie. The splendid condition of Messrs. Stuart Lowe's carnations was most noticeable. In every variety the flowers were large, well formed, and the calyx non-splitting.

Innocence, one of the most beautiful single roses seen at the Show, was exhibited by Messrs. Chaplin Brothers. The cluster of reddish gold stamens makes a pleasant contrast against the pure white crinkled petals. Messrs. Waterers showed good blooms of Betty Uprichard, Los Angeles, Emma Wright, Lady Roundhay; and Mr. J. H. Pemberton had the deep velvety red variety Château de Clos Vougeot, Padre, The General, I. Zingari and many other fragrant varieties.

Dracænas, crotons, caladiums, nepenthes and foliage plants of all kinds were well arranged by Mr. L. R. Russell. Collections of hardy plants were staged by Mr. F. K. Wood, Messrs. B. Ladhams, Messrs. K. and E. Hopkins and Messrs. Prichard.

Alpines were shown only by Messrs. M. Prichard, who brought up a small but interesting collection which included Campanula Halli, which has a certain stiff, crinoline grace and is the only double campanula that has not sacrificed most of its beauty in departing from the type; C. Hostii alba, a good albino and a very cold white beside the warm ivory of C. pusilla alba, "la Religieuses des Près"; C. Tymonsii, rather frail and annual in appearance, but beautiful for the delicate cloudy quality of its many pale lavender flowers; Lobelia linnæoides, from the Falkland Islands, making a close carpet of dark green leaves like Linaria æquitriloba, but throwing up white flowers like small, spurless butterworts, on wiry 2in. stems; and our rare native Wahlenbergia hederacea.

NEW AND RARE PLANTS.

DIPTERONIA SINENSIS.—This is a representative of the maple family from central China, and its chief beauty would appear to lie in the handsome large pinnate foliage and the rather ornamental and conspicuous winged fruits which hang in large drooping clusters. These fruits are about 1in. long and of light brown to reddish colour, and are exceedingly attractive against the foliage. Award of merit. Shown by Mr. G. W. E. Loder, Ardingly, Sussex.

VERONICA HYBRIDA "CARNEA."—This is a much brighter and pinkish flowered form of the ordinary V. longifolia of the most common species in our borders and which thrives in any good soil. It is of strong and upright habit, reaching about 2½ft., and carries a number of long erect racemes composed of numerous delicate pale pink flowers with their out-thrust stamens. The foliage is also decidedly distinctive. Award of merit. Shown by Messrs. B. Ladhams, Limited, Southampton.

GLADIOLUS MRS. JAMES KELWAY.—A handsome variety of the large-flowered section bearing well formed flowers composed of white petals of good substance with a purplish streak in the throat of one of them. The blooms are excellently carried on the stiff, long and erect spikes. It is certainly a variety which should prove popular. Award of merit. Shown by Messrs. Kelways, Langport.

GLADIOLUS MARTHA WASHINGTON.—A rather slender variety with graceful spikes about 18ins. long bearing medium-sized flowers of good colour and substance. The colour is a shade of scarlet giving way to lighter tones in the throat, while two of the petals are streaked with very deep, almost burnt, scarlet crimson. It is a variety which will look at its best planted in beds or borders by itself. Award of merit. Shown by Mr. G. Churcher, Beckwith, Sussex.

ORCHIDS.

SOPHRO-LÆLIO-CATTLEYA MAGNET (S.-L.-C. Virginia × C. Hardyana).—In its comparatively short stature, the plant shows the influence of Sophronitis grandiflora contained in the parentage. The spike bore two flowers of medium size, with the segments compactly arranged, the sepals and petals purple-mauve, the labellum roundly formed, crimped at the margin, the outer zone rich purple, the inner area soft velvety crimson, the throat veined with gold. Award of merit. Shown by Lieut.-Colonel Sir George Holford, K.C.V.O., Westonbirt, Tetbury, Glos.

FORTHCOMING EVENTS.

Aug. 11th. R.H.S. Fortnightly Meeting, Vincent Square.
Aug. 18th. Shrewsbury Flower Show.
Aug. 26th. Southport Floral Fête (3 days)
Sept. 9th. International Flower Show (Edinburgh) (3 days).

VEGETABLES AND THEIR DISEASES

ONIONS.

THE maggot of the onion fly does a great deal of harm to the crops in spring, especially in a dry one. Usually the cultivator waits until he sees patches of yellowing plants before taking any action. As the pupa is formed in the autumn, it therefore remains in the ground all winter and, although it is more difficult to destroy the pupa than the maggots, autumn treatment of the soil is beneficial, and to this end an application of lime on the roughly dug soil will help matters. The lime will assist in pulverising the soil and render it workable at an early date, thus enabling the cultivator to form nice seed-beds. Sow at an early date, too, to get the resultant plants well forward and tough of skin before the fly lays its eggs on stems and leaves. But here, again, we should be in good time in using preventive measures against the fly itself. Make the plants and, indeed, the whole quarter distasteful to it by spraying plants and surrounding paths, etc., with a paraffin emulsion and one from quassia extract. Use these alternately every ten days. The fly deposits its eggs on the leaves and stems of the plant. Sometimes the late-raised plants are punctured just above the soil level and eggs deposited near by, and then the resultant maggots soon find their way down to the roots of the young plants, which are killed wholesale. When emulsions are applied they should be in the form of a fine spray, as it is not desirable that the "bloom" on the leaves should be destroyed.

Onion mildew has been very prevalent during the past few years, and it seems to come suddenly after a prolonged spell of hot, dry weather when rains and mists or fogs come. The spread of the fungus is, indeed, rapid in many instances, and, as it spreads from plant to plant, a keen look-out for its first attack should be kept. I have during the past three or four years relied much on "Abol," and on the first signs of mildew simply applied a proper strength dose to the affected leaves with a small sponge. This treatment was given to exhibition bulbs. For general use it may be sprayed on. The bulbs should be encouraged to swell a lot throughout July, and, as the mildew comes near the end of that month and in August, fairly good bulbs will be secured even if a mild attack does come. The "Abol" destroys the "bloom" on the leaves, and because of this I apply it to the mildewed parts only with a sponge. Only in exceptional cases should onions be watered. The soil should be deeply trenched and heavily manured, mixing the manure with the soil well below the surface. The roots will penetrate after it and, in dry weather, sustain the plants better than they would scorched one day and soaked another on the surface. Any watering and liquid feeding should be done by pouring the water into holes made 3ft. apart, thus keeping the subsoil moist. Surface mulching is very beneficial if the material be applied in good time.

CABBAGES, CAULIFLOWERS, BRUSSELS SPROUTS AND GREENS.

Last year cultivators lost many thousands of promising plants through the ravages of the caterpillar. Large breadths of fine vigorous plants were riddled and the hearts rendered useless in the course of three weeks. The small

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white butterfly has been seen in large numbers during the past fortnight. Both these and the large white butterfly are collected by the thousand by schoolboys, and some good must be done; but, still, the damage is often excessive. The cabbage moth, too, will destroy the tender hearts of the plants through the action of its caterpillars, which do their fell work out of sight. A paraffin emulsion will do much good in keeping away the moths and butterflies from exhibition plants if finely sprayed on the soil about the plants. I have found quassia extract in weak doses, weak solutions of salt and water, lime, soot, and even very dry dust, preventives to some extent. But my exhibition plants—just a few of them, especially cauliflowers and cabbages—have been hand-picked twice a day in past years for several weeks prior to the shows. I do not know of any other remedies than those quoted above.

The "clubbing" of the plants does a great deal of damage, too. The gall weevil also causes swellings on the roots, the lower parts of the stems and, in the case of turnips, on the swollen base.

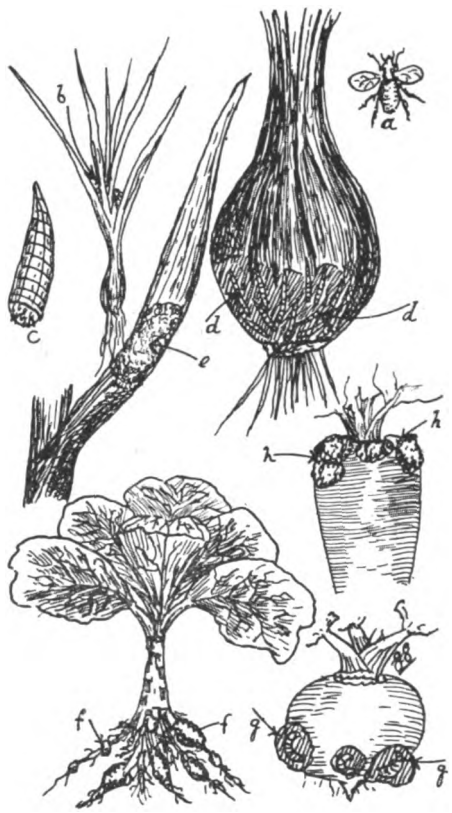
Soot and lime (quicklime) used together, under the surface—this is a very important point—will do a lot towards rendering the soil unsuitable for the growth of the club-root fungus and the gall weevil. If plants are once badly affected, they should be destroyed; if not badly affected, tread down the soil very firmly over the roots and then draw up soil as high as possible to the stems. Many new roots will permeate the added soil and help the plants to become fairly profitable. The trouble is always worse in light than in heavy soils. In one garden winter greens were grown for nearly one hundred years in the same part of it. When I took charge I found weevil and club-root trouble, so I relied on lime and common salt, using at digging time 2 pecks to 3 pecks of lime and 1 peck of salt per square rod. The digging, on account of the nature of the crops, had to be done late in winter and early in spring. Result: the first year a great improvement; the second a still greater improvement, and after the third year not any clubbing.

The seed-beds should always be equally carefully prepared, new ground used every year, and the plan of early transplanting in nursery beds adopted so that there may not be any check to growth.

CUCUMBERS.

These are often destroyed by red spider, eelworms and canker of both roots and stems. It is very difficult to get rid of the spider when once it has become established; much easier to prevent an attack. Heat and moisture assist a healthy growth and prevent red spider spreading. When the plants are syringed at closing time a very small sprinkling of fresh soot on the floor, liquid manure, or both, will keep in check red spider; dry atmospheric conditions favour its increase. Red spider breathes through its body; it sucks away the juices of the leaves and soon destroys them. Eelworms are minute creatures and enter the roots of the plants. Their effect upon the latter is to cause them to droop and become useless in spite of watering, close temperatures, etc. The eelworm is in the soil, so new should be used for a succeeding crop, the old cleared out and the walls washed with hot limewash, the bottom of the bed being sprayed freely with hot lime too. All new composts, including leaf-soils, should be sterilised.

Root and stem canker can be avoided by having the compost a few inches higher where the plant is placed and by using a compost that is on the side of lightness. It is lack of ventilation of soil and a too moist condition combined that causes this canker. If dry lime be gently rubbed in immediately the canker



a, Onion fly, slightly magnified. *b*, Eggs of the fly. *c*, Larva of the fly, greatly magnified. *d*, *d*, Grubs or maggots inside the bulb near base. *e*, Shows how onion mildew first appears on the leaves. *f*, *f*, Show club-root on cabbage. *g*, *g*, Show grubs of turnip weevil. *h*, *h*, Cankered top of parsnip.

is observed and the soil maintained in a drier state just around the stem itself, the disease will rarely spread and nature will effect a cure.

PARSNIPS.

The leaf-miner does a great deal of harm to the plants in dry springs and when cold winds prevail, which prevent the free growth of the leaves. The same remedies should be applied as in the case of carrots. But the most serious trouble arises from canker, which renders the maturing roots quite unfit for food in a short time. Some cultivators grow their exhibition parsnips on the same plot of ground year after year, but as the soil, generally, becomes very fine and light, the canker rarely does much harm to the roots. In the case of naturally clayey soils a change of quarters should be the rule every year and the soil ridged or trenched early in the winter, leaving the top portion very lumpy. Ordinary digging will not answer, and it will be advisable to do this in February just before the bed is prepared and the seeds are sown before the soil can pan down hard again. All manure used should be well rotted and applied late the previous summer or early in the autumn and winter, not any at seed-sowing time. Furthermore, it will be beneficial if 6 oz. of lime per square yard be applied in the autumn. Thin out the seedlings while very young so as not to disturb the one retained when advanced in growth. Hoe between the rows of plants weekly, it will promote healthy growth.

LETTUCE.

These plants are quick-growing, and if one crop fails another one may be raised in the course of a few days. Stem-rot is troublesome in heavy soils late in autumn and sometimes in spring among the autumn-raised plants. Extreme dampness must be guarded against, and where this stem trouble appears use old mortar rubble and lime dust when preparing the ground. Slugs, it seems, are always with us where lettuce plants are grown. Applications of lime and soot and also hand-picking are the surest remedies.

MUSHROOMS.

In some old buildings cockroaches are very destructive to mushrooms and woodlice are still more numerous, as the latter are everywhere, in public road, hedges and fields. Usually we cover mushroom-beds with straw or clean hay. But such covering material should be removed directly the first mushrooms appear and sheets of brown paper substituted, as the pests will not congregate as much under them. The hay, or straw, should be kept in a heap in a corner of the house with an odd mushroom or two, and a handful of bran placed under it; the woodlice will be found there mostly, and can be destroyed wholesale. The cockroaches should be killed with Keating's Powder, used just off the bed itself. Look for slugs at night and kill them, also place cabbage or lettuce leaves down as traps.

TURNIPS.

While the plants are in their seedling stage they are liable to destruction by the fly or flea. They should be syringed three times a week with a solution of quassia extract and fine dust at once sprinkled on, which makes the solution still more beneficial. Constant hoeing between the rows of plants helps in preventing loss through the attack of the flea. Turnips, both in a young stage and when approaching full size, are subject to club-root or "aubury," and also to the attacks of the grubs of the gall-weevil. Gas-lime, 2 oz. per square yard, applied in autumn, or quicklime, 6 oz., applied in February, will do good, also 1 peck of salt per square rod applied one month prior to sowing seeds.

G.

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THE LILIES OF EASTERN ASIA

I HAVE nothing but praise for this fine volume ("The Lilies of Eastern Asia." A Monograph by E. H. Wilson. Imperial 8vo. Pages xiv + 110. Frontispiece and sixteen plates. London: Dulau and Co., 1925. Price 25s. net.) on the lilies of Eastern Asia. The text is clear, well arranged and full of accurate information on the history, description, distribution and cultivation of these beautiful plants. The author, moreover, is the most competent authority on the subject, as he has seen practically all the species in the wild state, and observed most of them for years under cultivation. The publishers are also to be congratulated on the excellence of the paper, printing and illustrations of the book.

Wilson recognises forty-seven species of Lilium indigenous in Eastern Asia; and all these are fully treated in the text. His arrangement of the species seems to me to be sound, as it stands the test of geographical distribution. His treatment of nomenclature is critical but informed with good sense. Changes have been unfortunately necessary in some cases, but Wilson has exhausted the literature to bed-rock, and future alterations in the Latin names will be trivial or unnecessary.

As an example of Wilson's discrimination of species and varieties, I may adduce the giant lilies, which constitute a section, Cardiocrinum, of the genus Lilium, that is not represented in any other part of the world. Four distinct giant lilies have been found growing wild. The type, Lilium giganteum, is a native of the Himalayas and the Khasia Hills, at elevations ranging from 5,000ft. to 10,000ft. A lily like this grows in mountain woods at similar elevations throughout Central and Western China; but it differs in the dark stem and in the horizontal flowers, pure white on the outer surface. Wilson now distinguishes this as Lilium giganteum var. yunnanense, thereby recognising the error into which he and I had formerly fallen of believing it to be identical with the Himalayan plant. In such a case as this, when two plants, each confined to a separate geographical territory, do differ in constant recognisable characters, I consider that it is more convenient to rank both as distinct species. I would consequently adopt for the Chinese form the name given to it by Franchet, namely L. mirabile. Its habit is well shown in Plate XIV, which depicts a group of these lilies in the mountains of Western China. A third giant lily grows in Central China (Kiangsi and Western Hupeh), at lower elevations. Wilson describes this as a new species, L. cathayanum. The fourth giant lily, L. cordifolium, is wild in Japan, Saghalien and the Kurile Islands. The discrimination of these four plants is evidently a natural arrangement, establishing the existence of two quite distinct species in India and Japan, while two others in the intermediate territory of China, are found to be similar, one to the Himalayan and the other to the Japanese species.

Wilson's handling of the true lilies with large, trumpet-like flowers, which constitute his section Leucolirion, is very skilful. Here, especially among the Chinese species, there has been much confusion, now happily cleared up. There is no difficulty about the Nilgherry lily, L. neilgherrense, and the two Himalayan lilies L. Wallichianum and L. nepalense. The latter is unknown in cultivation; and the lily from Upper Burma considered to be identical with it by Baker, is proved by Wilson not to be a trumpet lily at all, being the same as L. ochraceum, a native of Yunnan, which belongs to the Martagon section. He has established beyond doubt that L. longifolium, the most abundantly cultivated of all the Eastern lilies, is endemic in the Loochoo Islands and is unknown in the wild state elsewhere.

L. leucanthum is the common trumpet lily of Central China at 2,000ft. to 5,000ft. elevation. It is very variable in foliage and flowers, but Wilson is content to recognise two forms, the type and var. chloraster, both of which were introduced from Ichang to Kew Gardens by me in 1888.

Wilson has added two magnificent lilies to this group, L. regale and L. Sargentiæ, both of which he discovered in 1903 in Western Szechuan. Closely related to these is L. myriophyllum, the typical form of which is a native of Yunnan, whence it was introduced to Kew by seed, which I sent in 1897. Its more southerly form, L. myriophyllum var. superbum, grows in Upper Burma, and was introduced by Boxall in 1899. It was named L. superbum by Baker. Wilson also includes under the section Leucolirion, a group of three lilies, with slender stems and bell-shaped flowers—L. Bakerianum from South-west China and Upper Burma, L. sempervivoideum from Yunnan (not yet introduced), and L. rubellum from Japan. It is figured in Plate VI, growing in its native habitat with Rhododendron Tschonoskii. Plants raised from the Burmese form of Lilium Bakerianum in 1891, did not prove hardy and were soon lost to cultivation. Bulbs, however, sent lately from Burma by Lady Wheeler Cuffe, have flowered at Glasnevin under glass, but made no seeds.

Wilson deals with twenty-two species of Martagon lilies, among which he includes L. tigrinum and L. speciosum. The type of this section, L. Martagon, spreads from Europe and Western Asia as far eastward as the Iro River in Mongolia. One species of the section, L. polyphyllum, occurs in the Western Himalayas. It is very charming, and has been introduced several times, but has never secured a foothold in gardens. The most southerly species is L. ochraceum, which grows wild in Siam, Burma and Yunnan. Yunnan appears to be the headquarters of this section, and three species discovered in this province have not yet been introduced, namely—L. taliense, L. papilliferum and L. Stewartianum. We owe to Wilson, who introduced it in 1903 from Western China, the pretty L. Duchartrei, which grows well amid rhododendrons at Glasnevin. It was again introduced by Farrer, and renamed after him, L. Farreri, but the closest scrutiny fails to reveal any characters by which this plant can be separated from L. Duchartrei. L. Davidii, a native of the Tibetan-China borderland, is likened by Wilson to a refined L. tigrinum, being smaller in all its parts and without bulbils in the leaf-axils. L. lankongense, also a native of Western China, is similar in most botanical characters to L. Duchartrei, but differs markedly in the racemose inflorescence and more numerous crowded leaves. It was introduced into Edinburgh in 1920 by Farrer. The singularly graceful and attractive L. Willmottiæ is a native of the mountains of Central China, where it was discovered by myself in 1888. This lily is identical with L. sutchuenense, Franchet, figured in Botanical Magazine, t. 7715, but this earlier name is invalid as Franchet based his description on a specimen that is really L. Duchartrei. The other fine species from Central China, L. Henryi, which I discovered in 1888 and introduced to Kew in the following year, is well known for its great vigour and is remarkably hardy. Wilson deals at length with two well known lilies of the Martagon section, which appear to be common to both China and Japan, namely, L. tigrinum and L. speciosum. He praises highly var. gloriosoides of the latter species, the wild form in the Chinese province of Kiangsi, and in Formosa, and says that it is the loveliest of the coloured forms of the species, and worthy of a place in every garden.

Wilson gives a lucid account of the yellow-flowered L. Leichtlinii of Japan, and of its variety Maximowiczii with red flowers, which is widely spread in the mountains of Korea and Japan. Plate XI shows a fine view of the latter plant in its native home.

The section Archelirion is restricted by Wilson, and includes only one species, L. auratum, the noblest of all the lilies as regards the flowers. It is the Yama-Yuri or mountain lily of the Japanese, and is still a common wild plant in parts of Hondo. It grows on black, volcanic soil on the margins of woods in a region with a heavy rainfall. Wilson tells the story of how the Japanese exporters exhausted the supply of the wild plant and then began growing the bulbs in rich farm land for the European market, and from this practice arose the troubles of the cultivator. He advocates the planting of small, wild bulbs in light, sandy poor soil, where drainage is perfect, and among shrubs to protect the stems and leaves from direct sunlight.

The preceding notes, which I have culled from Wilson's book, could be indefinitely extended, if space were available. Special attention must, however, be drawn to the introductory chapter on "Lilies in their Natural Haunts," from which useful hints for cultivation may be taken. He recommends the planting of lilies among ferns or dwarf shrubs, such as lavender, wild roses, ericas, azaleas, dwarf rhododendrons, shrubby veronicas and olearias. It must be remembered, however, that while rhododendrons require peat, a great many lilies detest peat. Wilson believes in mulching, and recommends covering the bulbs in autumn with rotted leaves or exhausted manure. All the species benefit from planting as early in autumn as possible. At Glasnevin, experience teaches that raising from seed is the only way to keep up a healthy stock. When raised from bulbs or bulbils, the stock of most species appears invariably to deteriorate.

AUGUSTINE HENRY.

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NOTES FROM CONTRIBUTORS

LACHENALIAS.

IT may be well to remind readers of THE GARDEN that the time is at hand for dealing with these plants if the full beauty of which they are capable is to be obtained. Bulbs planted or potted up in late July give a very different result as compared with those planted in, say, September or October, both in vigour of growth and in the lasting qualities of the bloom. The grand spikes to which an award of merit was given at Vincent Square in February were potted up in July, and were a striking illustration of the value of early treatment.

Lachenalias are ideal plants for a cold house or a frost-proof frame, and the more recent introductions include some very beautiful varieties; but to get the best out of them they should be dealt with immediately.—W. D.

CISTUS RECOGNITUS.

IN a representative collection of cistuses the subject of this note is certainly one of the most beautiful and interesting. The flowers, which appear in June, are about 3ins. across, with broad, overlapping white petals, the base of each being lit by a flare of vivid citron yellow, rayed upon its outer margin by streaks of carmine. The shrub grows about 4–5ft. high, the flowers are borne in clusters, and the leaves, as well as the flowers, bear no little resemblance to those of C. Loretii (lusitanicus).

C. recognitus is, according to Mr. W. J. Bean ("Trees and Shrubs"), a hybrid between laurifolius and monspeliensis, and it is described by him as being "close to C. Loretii" (itself a ladaniferus × monspeliensis hybrid), but with "unspotted flowers." This, it will be seen, is at variance with the above description of the shrub, as sent out by the few nurserymen who stock it, and also with that given by Sir Herbert Maxwell ("Flowers: A Garden Note Book"). Can anyone put the matter right and say what C. recognitus is or ought to be? It is probably of Continental origin, and it may be that Mr. Bean has since had reason to differ from the statements originally made in his great work. At any rate, to my unskilled eye there is little to suggest any laurifolius influence in C. recognitus.—A. T. JOHNSON.

FIGS.

THE cultivation of figs outdoors is quite simple, providing the site is a suitable one. On the south coast figs can be grown in almost any shape or form without any protection; but in cold districts a sunny wall—facing south or south-west—is essential for success.

The fig thrives best in a good but not very rich loamy soil, containing plenty of old lime or mortar rubbish, crushed bones or the like, and made quite firm—almost hard, in fact. When the trees fairly begin to grow, in the spring, they should be carefully gone over and all superfluous shoots rubbed off; while any very strong growths must either be stopped or cut back severely, but retaining the short-jointed twiggy portions, which produce the bulk of the fruit. Outdoors the figs are borne on the previous year's wood; it is seldom that fruits will mature on the current season's growth, as it does indoors.

Some protection may be needed for the trees during cold spells and a good way to afford this is to tie up the branches in bundles of bracken or hay, or hurdles covered with matting may be laid against the wall, with bracken or straw placed underneath. It is an advantage if the protecting material can be removed on bright sunny days; the hurdle over method is, therefore, perhaps, the best

Under glass, figs may be successfully grown in pots, and with judicious culture and the command of plenty of heat as many as three crops of fruit may be obtained in a year—it is quite an easy matter to get two—while in the open one has to be content with but one set of fruits. Cuttings are easily rooted in pots of sandy soil in a hot-bed, or even on a sunny border in the open. For outdoor culture Brown Turkey, Brunswick, White Marseilles, Black Ischia and Osborne's Prolific are good varieties.—R. D.

SOME HEUCHERAS.

TO some, the native heuchera means the popular species brizoides and that only; but there are other kinds of equal merit and, in addition, several fine varieties. H. sanguinea splendens has fine spikes of brilliant crimson flowers, and other varieties of this same species include the really fine things Edgehall (bright rose) and Rosamundi (rich coral pink), both free-flowering and as tall as splendens. We also like the species alba, a distinct white with very pretty foliage, and micrantha with its red stems and long spikes of small whitish flowers. HH. pubescens and Richardsoni are not, however, quite so fine as the others, although they are effective enough in the rock garden and make quite attractive plants. Profusion is our best white; Flambeau, a variety we could not miss on account of its flaring red flowers; and there is also Zabeliana, a pink, whose long stems are among the finest for cut bloom.

Heucheras should never be left to themselves. We make it a rule to lift the clumps each spring, dig the soil well and add a light dressing of manure (or guano and leaf-mould when manure is scarce), then we separate the clumps and plant the best shoots. In this way the colours remain true, the plants are strong, and the spikes both large and attractive.—HUGH H. AITKEN.

CERASTIUM ALPINUM LANATUM.

FEW of the cerastiums are much grown in rock gardens, but C. tomentosum is a well known plant in many places where, although rather too spreading in its habit, it has been appreciated on account of its silvery foliage and its wealth of white flowers, which have given it the popular name of Snow in Summer. Of the other species which the writer has put through his hands one of the most interesting has been that called C. alpinum lanatum. It differs greatly from C. tomentosum in its appearance, and, although it has white flowers also, they are not borne in such profusion nor do they give the effect of those of its sister flower. It owes its main attraction to its mats or small carpets of silvery foliage which that able grower, Mr. Clarence Elliott well describes as "like chinchilla fur which has been remodelled several times." It is emphatically a subject for the plant lover who seeks for other features than brilliant displays of flower and can find delight in such points as this. It is not difficult to cultivate in a sunny, well drained part of the rock garden in stony, sandy soil, or, better still, in a moraine. But those who live in districts where there is a heavy winter rainfall will be well advised to give C. alpinum lanatum the benefit of the shelter of a sheet of glass overhead during the winter months. No difficulty will be experienced in propagation by division or cuttings.—S. ARNOTT.

ERYTHRÆA MASSONI.

BEING of dwarf growth (never more than 6ins. high), compact habit and very free flowering, Erythræa Massoni is an ideal plant for the rockery.

The flowers, which are of a rich, rosy pink hue, are usually seen at their best in July. The plant, which is a perennial, can be increased by division in the autumn or in spring (of the two seasons I prefer the former), though, perhaps, the better method of increase is from seed. By sowing the seed, under cover, in spring and pricking off the seedlings singly into small pots or, if desired, into boxes and allowing them to remain thus for the first year, it will be found that they are strong, healthy plants for putting out on the rockery the following spring.

A light soil coupled with a sunny position will be found most suitable. It may be advantageous to cover the surface of the pocket with fine granite chips, for these, in addition to preventing the soil from becoming parched in the summer, also act as a blanket for the roots in winter.—W. H., *Glasgow*.

INCREASING HYACINTH BULBS.

A DUTCH method of securing a large number of small hyacinth bulbs is really worth trying. The plan may be carried out in the summer with any hyacinth bulbs, providing that these are well ripened and the foliage has been allowed to die down naturally. Take the bulb and, with the root part upwards, drive a knife into the underside with its point inclined towards the centre. Carry the cut all round, so that the base of the bulb is removed in the shape of a cone. This portion may be thrown away, as it is of not much use, although, on occasion, it will grow if planted. The remaining part of the bulb, which has been hollowed out in the form of a cup, is put on the shelf of a greenhouse or in any similar position where it is fully exposed to hot sunshine. In course of time, this part of the bulb, technically known as a "mother," will send off large numbers of tiny bulblets. These grow rapidly and, when they are about the size of hazel nuts, they may be gathered and planted in soil. It is rather a good plan to put the bulbs in a bed where they need not be disturbed. Rarely are flowers produced in the succeeding spring, but, in the next season, small graceful spikes are developed. While these hyacinths never display blooms of massive proportions, they produce flowers which are useful for cutting, so that the experiment is well worth while.—S. L. BASTIN.

MUTISIA DECURRENS.

THOUGH introduced many years ago, this curious climbing shrub is still very uncommon, probably owing to the fact that it has been a disappointment to so many.

In the first place, M. decurrens is quite hardy enough for most districts, in spite of the fact that it is a native of Chile and an evergreen. It appears to resent too hot a place—such as a south wall—and to have a partiality for a westerly aspect and a root-hold of light soil which is not too hot and enriched with a liberal quantity of leaf-mould. Planted on the shady side of some slow-growing bush, 5–6ft. in height, its wiry stems will ascend into the branches, to which the leaves, whose midribs end in a forked tendril, will cling with extraordinary tenacity. At the ends of the current season's shoots the composite flowers appear singly, each on a stout 4–5in. stalk. The buds of these, being a soft steely green and enclosed in a number of close, overlapping scales, rather suggest the head of a globe artichoke in miniature. But no sooner has the wonderful flower expanded its splendid rays, fourteen to twenty in number, ½in. wide and of a glowing orange-vermilion, than the likeness to that prosaic vegetable is suddenly transformed into that of some glorified gazania.—N. W.

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A REQUEST

I HAVE received a letter from an old and valued subscriber to THE GARDEN, and one who often sends in extremely valuable contributions to the paper. In it he says: "I know that a letter (in THE GARDEN) from those possessing exceptional gardens would give me infinite pleasure, besides helping one to grow plants at present unknown."

I have written several times before on the subject of co-operation between a horticultural paper, like THE GARDEN, and its readers, and I feel that an editorial staff cannot do better than try to explain that one of its main uses is to act as a clearing house for all information dealing with every imaginable class of gardening subject. We try to cater for every class of gardener, from the specialist to the tyro, and we believe that we succeed, but there is always more that can be done.

However good and authoritative an article may be, it can never be said to finish a subject, and there is no doubt that there is more knowledge, infinitely more, locked up in the heads of gardeners throughout the British Isles than has ever appeared in print. It is the duty of an editorial staff to tap this knowledge and issue it in the most suitable form. Our difficulty is in getting gardeners to write. I suspect that they are a shy race, but for the common weal this shyness should be overcome. In the future we hope to increase our Correspondence and Notes of the Week pages without lessening the importance of our main articles. This, however, is impossible without the co-operation of our readers, for we are proud to say that every note in these pages has come, unsolicited, from our readers. It is only fair to state that these must contain something of interest to the gardener to make them worth publishing, but there is so much to be learnt, even about the commonest plants in the garden, that this presents no difficulty.

The letter from which I have quoted deals with rare plants, such as may not interest every gardener, but there is room in our pages for information about everything, and it makes no difference whether the note is about some slight—and successful—change in the method of growing cabbages or some mention of a new or rare plant. There are plenty of species and varieties in this country to please everybody. What is usually lacking is knowledge: knowledge of habit, knowledge of growth, knowledge of their whims, knowledge of their increase. It is often this knowledge which some particular gardener possesses and which should be shared with the general gardening public. I ask every reader to think carefully whether he has not something of interest for all gardeners. If he, or she, has succeeded with a difficult plant, found an improvement in the cultivation or propagation of a particular plant, evolved a new and successful colour scheme, utilised the ground at his disposal in a novel way, and so on, let him—or her—send in a note to THE GARDEN about it.

RUBUS QUINQUEFLORUS

Some time ago I mentioned this most excellent species of raspberry which comes from China. It is certainly one of the best of the white stemmed Rubi, for it is graceful in growth, is not given violently to suckering, has a pretty flower and a most excellent fruit. This is golden in colour and although inclined to be rather tart, has a most pleasant, fresh flavour. An added advantage has just come to my notice. The ordinary raspberry is much affected by damp, and all growers, whether private or commercial, know the deterioration that takes place in the fruit after heavy rain. This is not so with the fruit of Rubus quinqueflorus. Towards the end of last week I raided a large bush of this Chinese raspberry and even after heavy rain found the quality and flavour unimpaired. In its present form it is hardly a raspberry to be grown on a commercial scale, as the crop is not heavy for the size of the plant, but here is, surely, a case for the hybridist? A cross between this and a garden variety might give us perfection in bush fruit. The best plant of this species that I have seen is growing in the open, but is slightly shaded on the west. This specimen is over 8ft. high, with a great central pyramid and numerous canes curling over. Although prickly, the canes are not so thick that one cannot reach the fruit. There is no reason why this raspberry should not grow on a wall.

There are, of course, dozens of Chinese rubi. I have forgotten how many new species Mr. Wilson alone found in Hupeh and Szechuan—and most of them are rapacious frauds, which are best left severely alone, but there are a few exceptions, among them R. bambusarum and R. quinqueflorus. As an economic plant I should imagine that the former was of little use, but the latter has distinct possibilities.

E. H. M. C.

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

THE STEWARTIAS, by A. Osborn.

THE PROFITABLE UTILISATION OF GLASSHOUSES, by Sidney P. Wells.

INTERESTING PLANTS, by F. A. Hampton.

BENEFICIAL INSECTS, by M. L. Brooke.

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ANDROSACES

WITH THEIR WOOLLY COVERED AND TUFTED LEAVES SITTING TIGHT IN THE CREVICES OF A STEEP ROCKERY AND THEIR DAINTY AND GRACEFUL FLOWERS, THE ROCK JASMINES ARE AMONG THE MOST CHARMING OF THE ALPINES.

MOST rock garden enthusiasts are well acquainted with this beautiful family, either in theory or practice. Androsaces are, however, too often left out of collections owing to their many objections to captivity, and yet, even the most difficult members can be mastered sooner or later by the keenest perseverance, and it is in these instances where the real joy and love of alpines lurk. I recall to memory flowering A. glacialis for the first time. I grew a couple of specimens—in my own opinion, perfectly. They were smothered in dainty, clear pink blossoms, and I was never tired of feasting my eyes upon them. I could see exceptional beauty in them, and considered I was well rewarded for the trouble I had had in keeping them going. I really believe it to be as difficult as Eritrichium nanum. A month from when they were at their best, after a fast decline, both plants were dead, having passed away for no reason whatever. Many other species and varieties are, however, more amiable and of stronger constitution, and can be grown moderately easily, and yet give us the daintiest of flowers. Many are swathed in short silky hair: these are the most liable to succumb to winter wet. Others are shiny and hairless, usually the easiest to manage. A pane of glass over the most tender subjects will often save them, although, if it is possible to do without such means, I should prefer it. A. helvetica is one of the small woolly types, and is one that is often not attempted owing to its minuteness and tendency to become a victim to fogs and rain; but, nevertheless, I know of one particular 3in. cushion that existed unblemished for ten years in an unprotected position in the crevice of a limestone boulder. During those years, the Great War was taking place, so that helvetica had more or less to take care of itself, and this it did to be sure, for up to the present year it was almost as good as ever. Grown as specimens for the alpine house, androsaces are all good and interesting, with much more opportunity to make their name good. I give below a generous selection and description of some of the best of the race:

A. SARMENTOSA, ONE OF THE MOST ROBUST MEMBERS OF THE FAMILY.

ANDROSACE SARMENTOSA.—This is one of the most popular species, being one of the heartiest and most robust growers. It forms a mat of silky rosettes, each from one to two inches across, and these provide abundant pale pink flowers, carried in heads on 3in. or 4in. stems, in May. After flowering, numerous runners are produced, terminating in a fresh rosette of leaves; these lie close to the soil and soon take root with the greatest freedom, after which they may be either left to increase the mat, or be taken away to start a new colony. Treatment is of the simplest, giving it an open, airy position on some well drained gritty soil, preferably on the slope. A sprinkle of pure limestone chips around the collar of the plant will, no doubt, be beneficial to it. From sarmentosa we have the equally pleasing variety known as var. Chumbyi, which differs but very little—chiefly by its flowers being a clear bright rose. Cultural details as for the type hold good.

ANDROSACE STRIGILLOSA.—This is generally the plant that is sold as A. foliosa, with a character and habit quite unlike most of its group. In any good, well drained soil, it presents no difficulty in growing; far from it. It is of a robust thriving habit, making sturdy growth, 6ins. high, with large oval leaves which clothe the stout red stems. In June, we see its large round heads of lilac blossoms on stalks 3ins. or 4ins. high, which arise from within the centre of the cluster the top leaves form. A sunny yet moderately cool aspect will be found to satisfy its requirements.

ANDROSACE LACTEA.—A most delightful, dainty and free-flowering species, best suited for the moraine or scree, particularly limestone, since it is native to the limestone Alps. Granite or other stone chippings mixed with light sandy soil will, however, serve its purpose well. The leaves are long, narrow and sharp-pointed, and are arranged to form a neat, dense rosette. Flowers, large and white, are borne singly at the tips of the slender, many-branching stems, and have a fairly continuous season, commencing when the stems are 2ins. or 3ins. high, until they are 6ins. or even 8ins. During this time innumerable flowers are produced. It sets seed readily, and may be easily increased in that way. Very similar to this plant is the attractive A. lactiflora, the disadvantage of this being that it is only biennial at the most, and very often annual.

ANDROSACE COCCINEA.—Although this plant is more or less biennial, its inclusion among choice alpines should not be despised, as its flowers are of a wonderful scarlet hue seldom seen in alpines, and by saving its seeds a succession of plants may be maintained from time to time. Gritty loam suits it well, and rosettes of a leathern texture are formed, the individual leaves being strap-shaped and coming suddenly to a point. For the hybridist it is a species worth knowing.

ANDROSACE PYRENAICA.—One of the smaller species, covered with the finest of short hairs, and forms compact hummocks of tiny rosettes of wee narrow leaves. It is one of the easiest to do of the small types, and asks for a deep crevice in the face of a rock that may be filled with some sandy and gritty soil. Its flowers are borne, in May or thereabouts, singly, on short stems, and are white and of a starry formation. As the name suggests, the central Pyrenees is its native habitat.

ANDROSACE IMBRICATA requires "growing" to bring it to perfection, as it is not quite so easily established in cultivation and strongly resents excessive moisture in winter. Overhead wet will most likely cause it to die, so we must fall back

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on artificial protection—provided by tilting a pane of glass over it. It enjoys a hot, sunny aspect, wedged firmly between rocks that do not contain lime, as it is certainly natural on granite in the high Alps. It makes dense cushions of small rosettes of a handsome, silvery whiteness, and snows itself over with large white blossoms which are almost stemless. It would be, no doubt, better suited by alpine house culture, where the conditions can be made more to its liking. Grown in pans, wedged, and slightly raised between chunks of granite in a gritty, well drained mixture would suffice, and water need never hang about its foliage. Little or no water would bring it through our darkest days.

ANDROSACE HELVETICA resembles the two preceding species in habit, having large white stemless flowers sitting on firm downy cushions of miniature green foliage. It is one of the most popular of its section (aretia), and desires a deep sunny crevice in a very porous soil that contains plenty of limestone chips or similar substitute. Its distribution is wide, and it is abundant at high elevations on the limestone cliffs. A. helvetica also makes a good specimen for the alpine house and there it may enjoy a longer life more safely, as too much wet when resting is unwelcome.

ANDROSACE GLACIALIS is undoubtedly a plant for the specialist and for the lover of choice and difficult alpines, as it needs a good deal of care and attention if it is to submit to our cultivation; even then it may—or, at least, usually does—promptly die, so that when one does succeed in making it happy, it is a triumph and a great joy. Although it may bear large and dainty clear rosy blossoms, almost stemless, on cushions of grey-green foliage, its real charm and attractiveness, to me, lie in its culture. Other species are often quite as pretty to look upon and may be far easier to grow. The best place to grow it would be the moraine, where it may be given liberal underground water in the summer and be left as dry in the winter It is calcifuge, and a mixture of sandy vegetable soil with abundant granite chips would be found as suitable as any; or slate chippings may also assist, in view of the fact that it is often found on that material. It has a wide distribution in the European Alps, occurring at high altitudes.

ANDROSACE CYLINDRICA haunts high places in the Pyrenees, but it is not common by any means. It forms mats of stout rosettes of long, broad leaves covered with short hairs; these rosettes usually terminate old stems that are furnished below with the brown dry leaves of years previous. Numerous flowers are produced from the leaf-axils, but are rather starry and not too good a white, unless forms vary considerably, which I have not seen. Too much overhead wet in winter is fatal, so that the necessary precautions should be taken. It desires a sunny, deep and well drained limestone crevice. Similar to this plant are A. pubescens and A. hirtella. Although distinct, they are possessed of hairy leaves and small white flowers, and may be given treatment likewise.

ANDROSACE SPINULIFERA is a quite rare type from China and as uncommon in its mode of life. During the winter, it simply has the appearance of a compact spiny house-leek,

THE DAINTY AND FREE FLOWERING A. LACTEA.

ONE OF THE NEAT COMPACT HUMMOCKS OF A. PYRENAICA.

a tight incurved rosette an inch across, from the centre of which, in spring, it unfolds long oval leaves 3ins. or 4ins. in length, and eventually throws up tall sturdy flower stems with solid heads of deep pink blossoms. A cool position in leaf-mould, loam and sand will suit it well, and it is deserving of a choice position.

F. BARKER.

(*To be continued.*)

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CONSERVATORY AND GREENHOUSE

SALPIGLOSSIS SINUATA in many beautiful varieties is unique for conservatory decoration, well grown plants attaining a height of 3ft. to 4ft. Compared with other annuals used for this purpose they require a long growing season, and seed should be sown in a cool greenhouse or cold frame from the middle of July up to the beginning of August. In the immediate neighbourhood of London and other large towns where winter light is at a minimum the longer growing season is very essential. This beautiful plant is not one of the easiest to grow successfully in pots. It is advisable to sow the seed in a cool greenhouse. When the seedlings are large enough, they should be pricked off singly into small pots, affording water very carefully and shading from bright sunshine until they are well established. When well rooted they may be given a shift into large sixty-sized pots, in which size they should pass the winter, keeping them well up to the roof glass in a cool, airy greenhouse and giving water very carefully to the roots during this time, as they are apt to suffer from damp. Early in the New Year they should have a shift into 6in. pots, observing the same care in watering until they are well established.

CALCEOLARIAS of the herbaceous section can be sown during July or early in August. A light rich compost may be used for seed sowing. The very fine seed should be carefully distributed over the surface, and it is well to cover with the merest sprinkling of sand. Cover the seed pan with a piece of glass and keep shaded until germination takes place. When fit to handle, the seedlings can be pricked off into pans or shallow boxes, and when they have attained some size they may be potted up into small pots, using a light compost at this early stage. During subsequent pottings use a heavier compost. Calceolarias during all stages of their cultivation should be grown perfectly cool with plenty of atmospheric moisture. During the winter they succeed in low pits or frames that are just kept free from frost. They are very subject to attacks of green fly, which must be prevented by frequent light fumigations. The light and elegant hybrids of Calceolaria cana are so dainty and charming that they are worthy of more general cultivation. As they are available, cuttings should be secured of the shrubby varieties, as represented by CC. Clibrani, Allardii, integrifolia, Burbidgei, angustifolia and alba, young growing shoots of them all being essential for successful propagation. They can all be successfully rooted in a close case in a cool greenhouse.

CYCLAMENS.—Seed is usually sown about the middle of August, but in the immediate neighbourhood of London it is best to sow about a month earlier, for, owing to the lack of winter light, they make very little progress during the winter months. As cyclamen seed is usually very irregular in germination, it should be sown very thinly; this allows for the more forward plants being removed without unduly disturbing the others. The seed pans should be stood in a house with a temperature of 55° to 60°. When large enough to handle, the seedlings should be pricked off into pans or boxes, using at this stage a light rich compost to which some old mortar rubble should be added. The young plants may be wintered in the pans or may be placed singly in thumb pots. In any case they should be kept well up to the roof glass, and should be given water very carefully at the roots, as they are apt to suffer from overwatering during the dull days. Early in the New Year they should be ready for a shift into larger pots. Cyclamens raised from seed last year should now be placed in their flowering pots, which may be 5ins. or 6ins. in size, according to the strength of the plants. The compost should consist of a good medium loam, with the addition of a little leaf-soil and lime rubble, which may with advantage take the place of sand; a 6in. potful of bone-meal may also be added to every bushel of soil. Cyclamens enjoy cool and moist atmospheric conditions, and are best grown in low pits or frames. It is an advantage if the lights can be removed at night, as they derive much benefit from dews.

BULBS FOR FORCING AND GREENHOUSE WORK.—If the best results are to be obtained, freesias, Roman hyacinths and paper white narcissi should be potted up some time during August or at the latest during early September. Thus, if not already done, there should be no delay in placing orders. Ixias in many beautiful varieties should be much more generally grown for greenhouse decoration; also sparaxis, babanias, Allium neapolitanum, Ornithogalum arabicum, as well as the many beautiful varieties of gladioli included in the nanus and ramosus sections. Lachenalias are also very much neglected, and are deserving of more general cultivation; also the beautiful varieties of Tritonia crocata, the variety Orange King being very beautiful and lasting well when cut. The many beautiful species and varieties of bulbous iris are also very charming when grown in pots and pans, being specially useful for the small unheated greenhouse. Veltheimia viridifolia and Bravoa geminiflora are also very useful for the cool greenhouse. There are, however, many other useful and interesting bulbous plants that should be more generally used for the greenhouse, which I hope to deal with in due course.

PELARGONIUMS of the show and regal types that have finished flowering should be stood outdoors in cold frames or at the bottom of a sunny wall. They require very little water at this time, as it is important to get the wood well ripened for the cuttings which should be secured towards the end of August. Pelargoniums of the zonal type that are required for winter flowering should be stood outdoors in a warm, sunny position, as it is very essential that the wood be well ripened before housing them for the winter. In such a position they require strict attention as regards watering and feeding.

HYDRANGEAS.—As they are available, good strong cuttings of the many beautiful varieties of Hydrangea Hortensia should be secured. The cuttings are best inserted singly in small pots. It is not necessary to cut them at a joint, as roots are emitted freely from any part of the stem. They root readily in a close case in an ordinary greenhouse. J. COUTTS.

LUPINS AND DELPHINIUMS

THE name lupinus, derived from lupus, meaning a wolf, was originally given to the plant because it was considered to be a voracious feeder which rapidly depleted the soil of the food stored therein. The wild species of lupin are often found growing on poor sandy soil, where, by means of bacteria which live in little nodules on the roots, they gather nitrogen from the air circulating in the soil, storing it up for the use of future crops. In Germany and, indeed, in many other parts of the Continent, lupins are often sown in poor sandy soils where little else would grow, and are then ploughed or dug in with a view to enriching the land. There is probably no race of plants, with the possible exception of delphiniums, which have been so improved during the last few years, and when it is realised that they are inexpensive to buy, will last for many years, and provide masses of colour ranging from the deeper shades to the softest colours, the demand for them will increase still further. The genus lupin comprises over ninety different species, and while in Europe most of these are annuals, in America, curiously enough, they are mostly perennials.

Among the species well worth growing are the following: Lupinus Hartwegii, a Mexican perennial which is usually grown as an annual in the gardens in this country. During the period between July and October the plant grows to a height of about 2½ft., and bears quantities of beautiful blue flowers with creamy white keels. L. Hartwegii cœlestinus is a lovely variety with pale blue flowers, and the best plan is to sow the seeds in the border during May or early June, thinning the young plants out to 9ins. or 10ins. apart. As soon as they show signs of blooming, any with rose in their colouring should be pulled up, as these are not nearly so attractive as the pure blue flowers.

L. mutabilis, or the changeable-flowered lupin, is a very fragrant half-hardy evergreen plant which, however, is generally treated as a hardy annual. A native of South America, it grows to a height of 3ft. to 5ft., bearing flowers from June to August, varying from white mixed with blue to pink mixed with cream. L. Cruckshanksii, or Mr. Cruckshanks' lupin, was found growing upon the Peruvian Andes near the verge of perpetual snow. It is considered by some authorities to be a variety of L. mutabilis, blooming in July with bluish purple flowers, the centre of which is deep yellow with wings of blue or lilac. This is a remarkably handsome plant, and it was growing to perfection during the summer of 1923 in Mr. P. D. Williams' beautiful garden at Lanarth, near St. Keverne, Cornwall, and later in Mr. Musgrave's garden at Hascombe Place, near Godalming.

Seeds of these annual lupins sown any time during May or the first week of June will bloom in the late summer.

The lupins growing in our gardens are for the most part the progeny of the perennial species, L. polyphyllus, which bears dark blue flowers and is a native of California. There is also a

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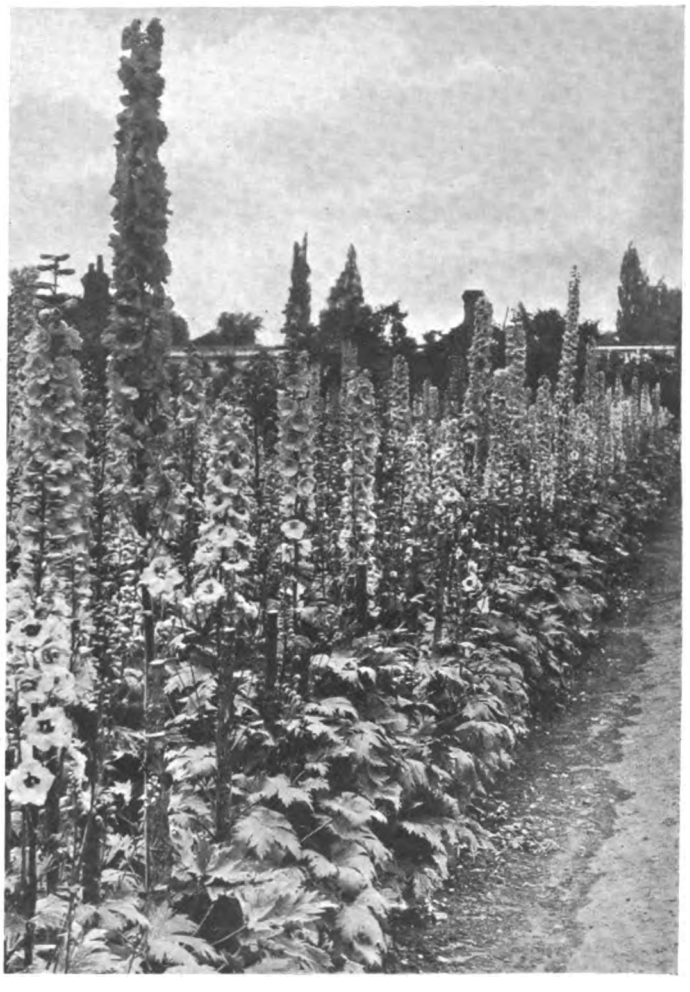
A WELL-FLOWERED CLUMP.

white form which is very effective. A new race of lupins introduced during the last few years is the result of crossing this species with L. arboreus, the true tree lupin, which is a native of California, with an evergreen shrubby type of growth. It grows to a height of about 3ft. in California, but in those parts of our country where the climate is at all mild and favourable large bushes are often formed several feet in height. These new hybrids show some of the characteristics of both their parents, are herbaceous in character and die down to the ground each winter. The colouring of many varieties is beautiful, and a border of these flowers forms a picture which is long remembered. The seed may be obtained and sown in the open ground in May, June or July, and the plants moved to their permanent quarters as soon as possible in the autumn. Plants can now be obtained so cheaply, and there is always such an advantage in planting clumps of the same colour, that the purchase of plants is advised whenever possible, and if these are ordered in good time for early autumn or spring delivery, beautiful results will be seen next summer. Individual nurserymen include innumerable varieties in their lists of herbaceous plants, but the following are recommended for any soil and garden: Nellie, which was a cross between L. arboreus and L. polyphyllus roseus, has white flowers tinted rosy mauve. Felicity is rich deep mauve, and a clump of this looks remarkably well at the back of a herbaceous border. Queen of the West is a variety eminently suitable for an amateur's garden, and the young flowers first open a soft yellow, suffused with mauve, and then change in the older flowers to deep wistaria. Milly has flowers of deep lilac, and is certain to be in especial favour where ladies undertake the planning of the garden. The soft pink Cross-Roads, the shell pink Tunic and the salmon pink Mayflower are three of the best pink varieties yet raised. Artist is a delicate blue, while a new variety called Countess of March opens a pure white and then gradually changes to wistaria mauve. May Princess is deep purple, and for those who prefer red shades, Downer's Delight, or its cheaper companion, Fire-Fly, will be successful. The last variety when planted in conjunction with blue delphiniums always looks well. Sunshine remains the best and richest yellow in this section, and the glow of this flower makes it very valuable for effect in the border. In addition to the delightful old species, L. arboreus, with its sweetly fragrant flowers, the new variety Light of Loddon should be included in all gardens. This is one of the best plants raised in recent years.

In most gardens delphiniums may be used to advantage, and these plants have been so improved during the last few years that a few up-to-date varieties should be obtained each year. Nora Ferguson is one of the finest and bears semi-double flowers on long spikes 4ft. in length. The individual flowers are powder blue, flaked or flushed with mauve, and as this variety has a very fibrous type of root, it is especially suitable for use in the average amateur's garden. Some of the single sorts are very lovely, and the sky blue Mrs. Crisp is one of the best. For those who like bright blue, Pannonia can be recommended, while in the deep rich purples an old variety The Alake can still hold its own. Two new varieties, the flowers of which might be described as an exquisite blending of mauve and powder blue, but which are still somewhat expensive, are Mrs. R. W. Ascroft and Peggy Wiseman. For the back of wide herbaceous borders the rosy lavender Shah, with its dark eye, is very handsome and grows to a good height. Where the taller varieties are not suitable, clumps of the belladonna section should be planted, as their branching habit is of especial value for providing spikes of flower for cutting purposes. The very soft blue Musis Sacrum, the dark blue Lamartine and the sky blue Belladonna semi-plena are three of the best.

ROBERT W. ASCROFT.



A HANDSOME BORDER OF DELPHINIUMS

SERVICE FOR READERS

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NOTES OF THE WEEK

CROCUS ZONATUS.

A VERY delightful autumn-flowering crocus, which can be recommended with every confidence for planting as soon as the bulbs can be purchased, if wanted to bloom this season, is that named Crocus zonatus, so called from the bright yellow bearded throat, which is zone-like in appearance. Its main coloration is composed of rosy lilac, with purple veining, and with a buff tube and the yellow throat already alluded to. The flowers, although small as compared with the great Dutch spring crocuses, are of a good size, and a clump when in flower in September or October is charming near the front of the border or rock garden, while for those who can afford to purchase it by the hundred a free planting in thin grass is lovely at that season. Corms or "bulbs" are not expensive and should, if possible, be planted from the end of July to the middle of August, when they can usually be obtained from bulb dealers, some of whom issue separate lists of such bulbs. A sunny, rather sheltered place in light soil is necessary for C. zonatus, and the proper depth at which to plant is about 2ins.—S. ARNOTT.

ROSEMARY.

THIS hardy evergreen shrub is found in many old-fashioned gardens, and was once held in high favour for its evergreen foliage and fragrance, both of which remain so long after the sprigs are gathered as to be thought almost immutable. Hence Spenser called it "the cheerful rosemarie." It was from its credited ability to strengthen the memory that the plant is said to have been regarded as the symbol of remembrance. More than any other old-time plant it brings with it an atmosphere of mediævalism, and that not merely from Shakespeare's allusion. In Elizabeth's reign was published a song book called "A Handefull of Pleasante Delites" or "A Nosegaie alwaies sweet for lovers to send for tokens of love at New Year's tide or for fairings," and therein was the verse:

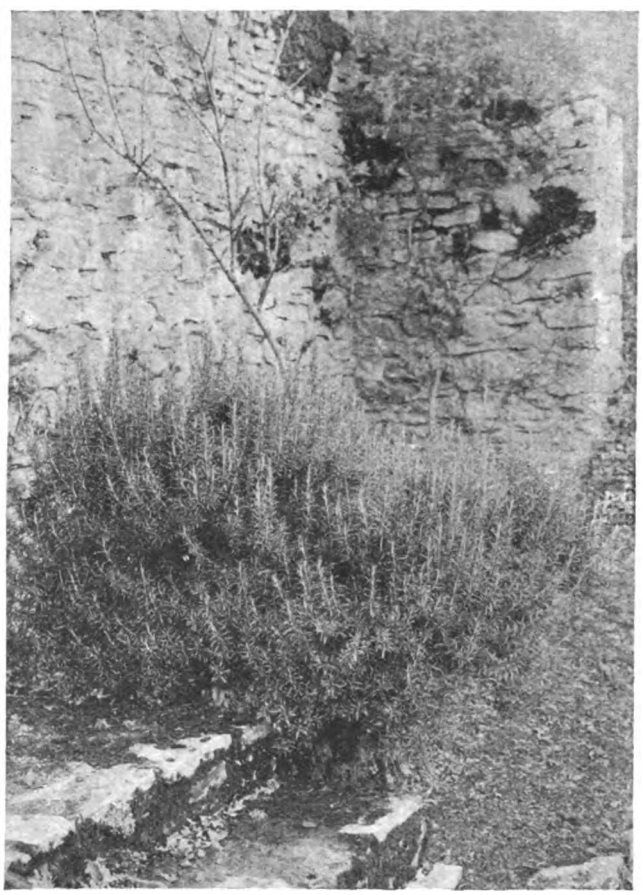
"Rosemarie is for remembrance
Between us daie and nighte,
Wishing that I maie alwaies have
You present in my sighte."

Planted against a wall and left long undisturbed, rosemary will attain a great height and size, with thick, woody stalks from which lutes, carpenters' rules, etc., were once made. The uses of this fragrant herb were many in olden days. It was used to ward off infection, as the chief ingredient in healing lotions and toilet waters for milady's boudoir, to strew on church floors at Christmas-time, and a sprig under a sleeper's pillow was said to induce refreshing repose. At weddings a spray of rosemary, as the emblem of constancy, was placed in the wine of the loving-cup. Contrary to this theory is the still popular idea that where rosemary flourishes the lady of the house reigns supreme. It is symbolical of friendship and remembrance, perhaps because its delicate haunting perfume is unique and must inevitably awaken old associations with pleasant gardens gay with humble blossoms.

The medicinal uses of rosemary are so many that, says an old herbalist, "you might as well be tyred in the reading as I in the writing if I set them down." The plant was once associated with sea spray (hence its name, *Ros marinus*), and flourishes best near the sea coast. It is a native of Mediterranean lands, and the French and Italian peasantry have woven around the plant many charming legends. Like the attributes for which it stands—loyalty, remembrance and friendship—rosemary puts forth its sweetest savour when sheltered from cold winds of neglect. —OSWESTRY.

STERILISATION BY CRESOL.

CRESOL is familiar to all as a black coal-tar disinfectant which when mixed with water gives a white, milk-like emulsion. It is sold under various proprietary names, the concentrate in all cases varying but little from a kind of standard strength; such liquids are in constant use in public halls, lavatories, etc., so that, we venture to say, cresol can be obtained in all towns and villages almost without exception.



ROSEMARY, A FINE OLD-FASHIONED GARDEN SHRUB.

Experiment goes to prove that cresol can be used as a steriliser on vacant land. These experiments were started several years before the war, and by 1914 it was recognised that cresol was useful in that search of ours for something to kill soil pests. Only lately have we ourselves repeated these experiments, and we wish to point out to others the possibilities of the substance.

Cresol used at a dilution of one dessertspoonful per gallon of water kills cabbage maggot, carrot maggot, white grubs, leatherjackets, wireworms and other soil pests. Actual contact, even, is not required, the carbolic fumes being deadly enough if near the pest; but every effort must be made to impregnate the ground, to moisten it to a depth of some 6ins. This is most easily done at digging; no other action is required—simply wet the soil. Cresol must not be used where there are plants. We find that certain plants and shrubs will survive the ordeal when dormant, as in winter, but no hard and fast rule can be determined, hence the above advice. A taint of it in winter-wash liquors—five times the above dilution—does no harm to dormant fruit trees and is decidedly a deterrent to bird pests. Turf treated with cresol is wireworm-free. These are a few other uses.

Soil or land must not come into immediate use after cresol is employed. The period which may elapse varies greatly, according to the weather mostly, but a safe period is a month; warm weather frees the ground much quicker than any other of our special weather samples, but yet an application in warm dry weather is more effective than any other application.—LANARKSHIRE.

MIMULUS BARTONIANUS.

FOR growing in cool and perhaps slightly moist positions the various forms of mimulus are ideal subjects, and the plant under notice is quite distinct from the majority. It was raised by Mr. H. O. Barton of Co. Antrim, and the parentage is stated to be M. Lewisii and M. cardinalis. The foliage is dark green, and the flowers, some 2ins. across, are bright rosy cerise with a yellow throat. It began to bloom early in June, and, at the time of writing the plants are a mass of flower, such a state of affairs will continue until early autumn, when the plant gradually dies down. A stock can be raised by means of cuttings in August and September, and they should occupy a cold frame for the winter.

I think this plant is fairly hardy, but last winter several examples were lost, perhaps owing to the sodden condition of the ground when the roots were dormant. However, it is very attractive and distinct and is worthy of a trial. —T. W. B.

NOTES FROM READING.

THERE are two dianthuses with yellow flowers out now. One has its pistil blue, the other white. This is the only difference I can see. One is labelled "aridus" the other "Knappii." Can anyone tell me the name of a dianthus with white flowers, very much fringed, with the scent of a Daphne Cneorum, though weaker, and foliage as prickly as Acantholimon venustum? Dianthus Donizetti is a fine colour and seeds abundantly. D. Forrestii seems to be a hybrid with barbatus blood in it. The colour is most attractive. A tree of Magnolia salicifolia 15ft. high flowered fairly in March, but now is covered with blooms for two-thirds of its height. Catalpa bignonioides 25ft. high and 30ft. through has been a marvel of beauty. Its flower clusters are finer than those of the horse chestnut and are deliciously scented. The leaves are particularly soft and velvety. Why such a treasure is so comparatively rare is a mystery. The tree is extremely shapely and gives a most grateful shade in hot weather. Eucryphia pinnatifolia, also 15ft. high, is covered with its white blossoms, to which the stamens lend an additional charm. Thalictrum dipterocarpum, showing its head above the dwarf shrubs among which it is growing, is singularly graceful. Of gentians, Lagodechiana, Freyniana and Purdomi are the best here.

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There are many of the type of cruciata all much alike but with many different names all hailing from various botanic gardens, but none corresponding to the prints of them in the *Botanical Magazine*. Omphalodes Luciliæ, which used to be the show plant of the garden, is once more looking happy and is covered with bloom. In a shady corner there are growing happily together Wahlenbergia hederacea, Linnæa borealis, Epigæa repens, Shortia galacifolia, Mitraria coccinea, Philesia buxifolia, Gentiana pyrenaica, Sisyrinchium filifolium, Pyrola rotundifolia. In a hot border, which has a glass over it in winter, there are in flower now Diplarrhena Moræa, Cypella Herbertii, Hippeastrum brachyandrum, Gerbera Jamesoni, Dianella cœrulea, Alstrœmeria hæmantha rosea and A. pelegrina. Pasithea cœrulea and Pentstemon puniceus are just over. P. cordifolius is just beginning to flower. Anemonopsis macrophylla and Deinanthe cœrulea are at their best, growing in a shady peat border. Gaultheria trichophylla has yielded a good crop of its blue berries, and we are collecting the yellow fruits of Leucopogon Fraseri. Polemonium confertum is flowering for the second time. The donor finds it an easy doer which rapidly increases in size and admits of division. We envy him, but are most thankful to have the plant again. The variety mellitum seems equally scarce. Polygala calcarea is still in full flower. On the Berkshire downs it covers many square yards, growing close to one of the patches of Anemone Pulsatilla. A generous friend gave me a splendid plant of Campanula Zoysii in full bloom. For half a day it was the glory of the garden, then slugs or snails endowed with some uncanny sense found it and left but a remnant. Paliurus Spina-Christi always flowers in profusion but never sets seeds. We have only one plant. Let no one who has a microscope deny himself the pleasure of discovering the beauty of Garidella Nigellastrum.

I have left to the last by far the most lovely occupant seen in the garden lately, a baby goldfinch, which allowed the gardener to pick it up in his hands and stroke its back. It seemed to like his attentions, though it would not drink the water or eat the worm he offered it, but it spread its beautiful wings and showed the wonderful gold of its under feathers. He placed it on a cherry tree, and from there it flew some 10yds. and then alighted on the lawn, revelling in the hot sun. He took it up again in his hands and put it on a soft cushion of a saxifrage on the rockery and left it there, and we have seen it no more. There are no cats in the garden.—A. C. BARTHOLOMEW.

THE HERBACEOUS PEONY IN CANADA.

ONE evening early in July the telephone rang, and taking down the receiver I was told that Montreal was speaking. I listened, and the familiar voice of a friend said: "My peonies are in blossom, will you not come up on to-morrow night's train and see them?" Except that I love all flowers, I have no particular penchant for peonies, but I have heard something about the peony in Canada and decided that this was a good chance to check up the story by personal observation.

I went, I saw, I returned amazed, charmed, enraptured. Canada can grow peonies unsurpassed the world over. I saw all the standard varieties of France, England and America flaunting their blossoms perfect in colour and form in I know not how many tens of thousands. I saw more than twenty thousand blooms of the superb Marie Lemoine, queen of all white-flowered peonies. From these fields some ten thousand blossoms had been cut and, through the patriotic philanthropy of far-sighted men, sent to England to be placed on exhibition at Wembley. If these travelled well the experiment would give English friends a glimpse of what daughter Canada can do in the growing of flowers. And the peony is not the only flower that flourishes to perfection in Canada. Far from it. But the peony has peculiar merits of immense value to Canadian gardens. The foliage is dark, lustrous and telling in effect, even after the flowers are past. In the winter the stems die down and the plant lies snug beneath the snowy mantle that covers the ground.

In Canada, for planting in city parks, edge of lawns, and in plats that abut on the street, the peony is perfect. A shrub of any sort would be injured, if not ruined, by the snow-plough passing over it or dumping snow on top, in fact there are laws forbidding the planting of shrubs in such places. The peony, which throughout the spring, summer and autumn has all the good qualities of a fine shrub, disappears completely in winter and offers no obstruction in the clearing of city streets and side walks.

Christened "Lady of the Snows" by Kipling, Canada right worthily is the "Land of the Peony Rose."—E. H. WILSON, *Arnold Arboretum*.

PLANTS IN NORTHERN AFRICA.

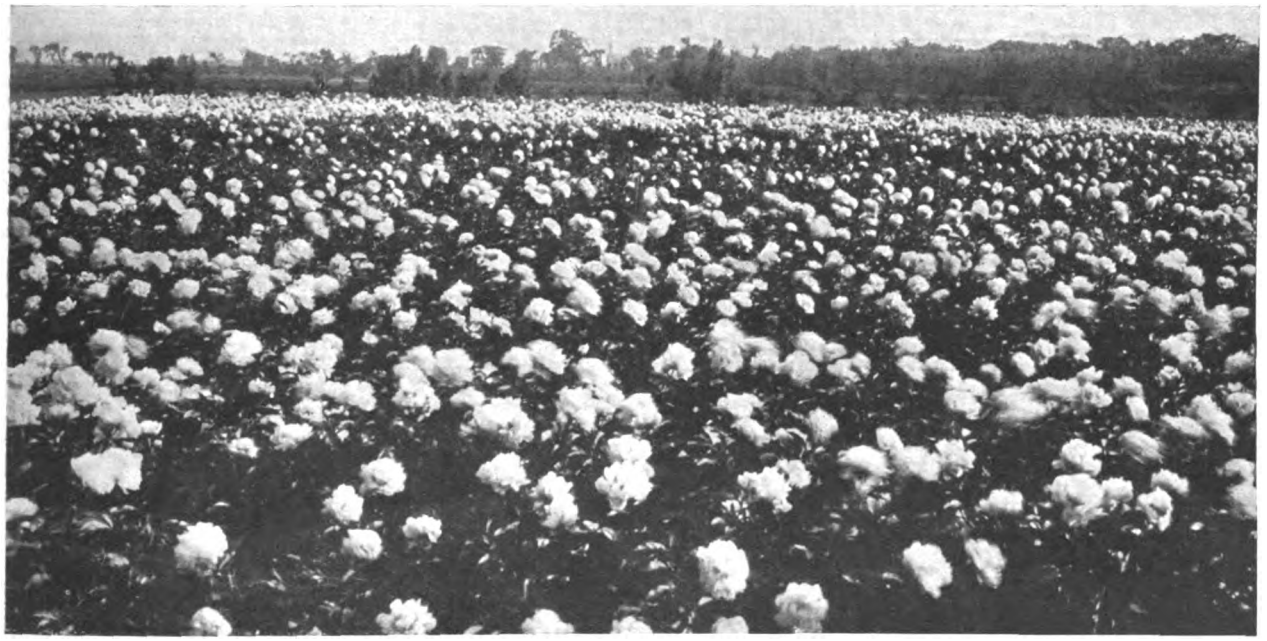
OUR first expedition to find plants in North Africa was to the plateau of Ras Afour, near Maruia, on the borders of Algeria and Morocco. One of our objects was to find the hybrid between Quercus Mirbeckii and Q. Ilex, which we were told was there, but we did not find it. We saw great forests of scrub evergreen oak and at the top of the plateau some picturesque veterans of former great forests, but no good trees and only this evergreen oak. The plateau is 5,000ft. high and had lately been covered with snow. In fact, we still found a patch of snow in a hollow, though the day was very hot.

Our disappointment in not finding the trees we wanted was made up for by seeing sheets of a lovely salmon coloured asphodel (Asphodelus repens, *Pouret*), growing flat on the stony calcareous soil, as if thousands of large asphodel flowers of a brilliant pink had been stuck in bunches among the stones. This gem has the most delicious perfume. All day we got whiffs of it as we hunted for other things among the dwarf oaks. I think, too, it should be hardy in England, as the winters at that height are long and very cold, but they get a tremendous ripening in summer.

On rocks in the shade we found a white form of Narcissus bulbocodium (Corbularia monophylla); this was growing in leaf-mould in crannies of the calcareous rocks. Quite close to it, but more in the open, Crocus atlanticus still had some of its lavender flowers, though it had nearly finished flowering.

On the way down, by the side of the road, in the hardest soil and schist rock, there were quantities of Tulipa celsiana, delicate yellow flowers flushed with a reddish-brown on the outside.

The whole of the slopes of the hills below the plateau are covered with a scrub, largely composed of rosemary, Calrycoton intermedia, looking very like gorse in bloom, and smelling like it, too; Cistus ladaniferus, with the large crimson blotch on its petals, and the small, but delightful, C. Clusii neat little



A FIELD OF WAVING WHITE PLUMES OF PEONY MARIE LEMOINE.

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green bushes covered with white helianthemum-like flowers. Here and there was a fine form of Lavendula Stœchas, very compact and grey, with large light purple bracts, a really decorative plant.—LAWRENCE JOHNSTON.

SATAN S SNUFF BOX.

ON an autumn morning, it is not uncommon for a gardener to find a lawn dotted with small, white, roundish, tuber-like plants, or puff-balls, although none of them was visible disfiguring the grass-plot on the previous day. The larger kinds are more seen during the autumn, growing in orchards near the roots of fruit trees, or in fields, being sometimes several feet in circumference. But in our country, rustics are apt to look upon all fungi which are not mushrooms as poisonous "toadstools," and, therefore, if they come across these monstrous puff-balls, often demolish them by crushing them under their feet. It is a pity, as they are perfectly innocuous when either handled or eaten.

These giant puff-balls, as they have been very properly designated, can hardly fail to be of some interest to any person who has the time and opportunity of studying closely plant life, as they are wont to exhibit an amazing rapidity of growth. Indeed, Carpenter, in his "Vegetable Physiology," goes so far as to say that "A large fungus of the puff-ball tribe has been seen to grow in one night from a minute speck to the size of a large gourd. No other living beings have powers of growth at all to be compared to this." Such prodigious increase in size in so small a time may well remind us of the description given in Scripture of the gourd which came up in a night and shaded Jonah.

Before any fungus of this kind becomes over-ripe its outer covering or rind looks like white kid, and the pulp inside, if examined, is found to be of a creamy whiteness and firm and fleshy. It is then very nice to eat if it is rightly cooked, tasting not unlike sweetbread. No one need fear to partake of it freely, for its size and globular shape make it impossible to mistake it for anything else. After having removed its outer skin, slices of the pulp about ½in. thick can be fried in butter and each slice may then be dipped in a beaten-up egg and sprinkled with breadcrumbs. Although there is a prejudice at home against puff-balls, yet in some countries they are commonly eaten, and one of the giant species is enough to satisfy the appetites of ten persons. When over-ripe

A GIANT PUFF-BALL.

the pulp is of a brownish colour and becomes dry and powdery, the powder consisting of spores interspersed with many fine filaments. Eventually the rind bursts and the spores, somewhat resembling grains of snuff, are emitted in the form of smoke. In former times there were among the peasantry some who employed the powdery portion of the fungus as a remedy for stopping bleeding. Not long ago an old countrywoman in Kent related that when she was a girl and bled from the nose her mother took her to an orchard and, picking up from the ground a puff-ball, applied the powder from it to her nose with good effect. As regards the use of the fungus in surgery, there is good evidence that it has been applied by surgeons for centuries to arrest bleeding, with excellent results. Its spores have been dusted over bleeding surfaces, or pieces of its pulp plugged into deep bleeding wounds where the cut blood-vessels could not be reached to be ligatured. As the pulp is very soft and porous or spongiform, it makes an exceedingly comfortable surgical dressing, and wounds often heal under its application without the formation of a scar. But it ought, before being applied, to be heated in an oven, to kill any noxious germs it might harbour. Bee-keepers, now and again, when they wish to procure the produce of a hive without destroying the lives of the inmates, ignite the puff-balls and then expose the bees to the fumes which arise and have a stupefying effect upon the insects. Also, this method of quieting bees has been adopted in order to introduce alien bees. But it has the disadvantage of leaving a disagreeable odour, which hangs about the stock for some time and is much more troublesome and less effective than chloroform. Furthermore, veterinary surgeons have by means of such fumes been able to produce insensibility to pain in dogs requiring operative treatment.

Among the majority of the commonality there appears to be a strong feeling of loathing and contempt in respect to this particular fungus. In fact, in some parts of England it is popularly styled "Satan's snuff-box," and in Scotland the "de'il's sneeshin'-mill" (devil's snuff-box). But it ill deserves to have such opprobrious epithets applied to it, as I have endeavoured to show.

It is a valuable article of diet, possesses powerful styptic properties, and is a useful agent for narcotising certain animals.—E. K., *Gravesend*.

NOTES ON STRAWBERRY CULTURE in the OPEN

OF all the so-termed "soft fruits," probably the strawberry is the most highly esteemed by all classes, rich and poor alike. In this article I will confine my notes to the cultivation of the strawberry for garden purposes, such as I have practised on successful lines for a number of years past. As a dessert fruit, the strawberry is in great demand as long as it is procurable; while for preserving, it is one of the most important of all fruits for the winter supply. This being a recognised fact, strawberries should be more extensively and better cultivated than they have been during the past few years.

No better time than the present can be selected to prepare for next season's supply, and any means of prolonging the supply of fruits, either by hastening or retarding, will, I have no doubt, be welcomed by your numerous readers. In many gardens, strawberries are grown in one position only, whereas by planting in various positions the season's supply may be extended by several weeks; in fact, nearly double the usual period. This is especially so in a season of heat and drought, like the present, providing the proper varieties and positions are chosen. The earliest fruits are always produced from strong, sturdy, well grown plants.

Now is the time to secure runners, from plants put out last season, as these young plants always give the best and strongest runners. Prepare a sufficient number of the different varieties required, retaining several of the best on each parent plant. The first runner produced on the stolons being invariably the best. All the others should be removed, together with weeds that have accumulated during the fruiting period.

Clean a sufficient number of large 60-pots, place one crock in the bottom, fill moderately firmly with a well mixed compost of 3 parts loam, 1 part old mushroom-bed manure (or, failing that, decayed leaf-soil passed through a ½in. sieve) and a slight dusting of old soot and fine bone-meal. See that the soil is in a moist condition for use.

Place the pots on the strawberry bed, in blocks together as much as possible, as this considerably helps forward the work both in the layering and daily sprinkling with a fine rose can; then place one strong runner in the centre of each pot.

I have found it advantageous to place small stones on the runners, in preference to pegs, to keep them in position till rooted. The stones conserve the moisture and assist in the formation of roots. Any of the short straw left on the beds may be placed round the layering pots, to prevent undue drying of the soil. Daily sprinklings must be given, preferably in the evenings, until the runners are established in the pots, any runners that are formed being immediately removed, thereby conserving the strength of the layers in the pots. Should the weather prove very dry, a good watering of the parent plants may be given, and help to keep down red spider, one of the worst enemies of the strawberry. During the time the plants are rooting in small pots, the various positions the plants are to occupy in their fruiting quarters should be prepared.

For the earliest supply, an open situation on a south border (say, 100ft. in length, or more, according to requirements) should be prepared and a liberal quantity of well decayed manure worked in. The following plan I have adopted for some years with success: After the preparation of the soil and lightly treading

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over and raking, the strongest plants are set out 14ins. apart all ways, placing them alternately. One point of vital importance when planting out strawberries is always to place the crowns facing south: also plant out the young stock as early in the season as possible, and before the plants become root-bound in the pots. By early planting and due attention to watering, etc., the plants start growing at once, and become well established in their new quarters, building up firm crowns—so essential to early fruiting—before the winter.

Returning to the south border plots. Half of these plants (100ft. run) are protected with lights during the winter and spring months, resting on a low skeleton frame made with odd pieces of quartering and boards.

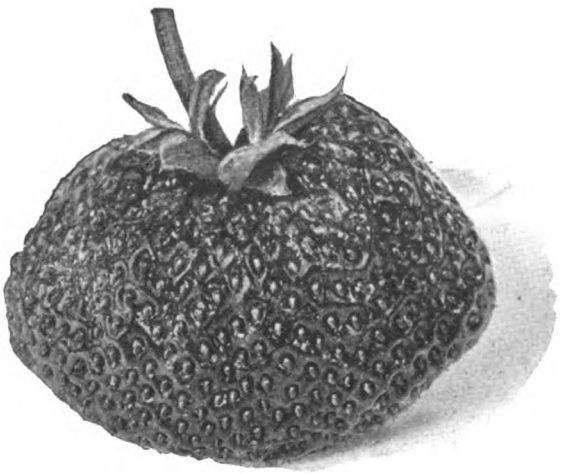
Strawberries thus protected may be advanced several weeks. The others on the south border, not so protected, form a good succession. The varieties Royal Sovereign and The Duke will be found the best for this purpose. Use the hoe frequently, removing all runners as they appear. In the early spring, apply a sprinkling of lime and old soot, to keep down slugs; and, before placing short straw among the plants, apply a dressing of artificial manure. These early plants will well repay the extra attention given. Plenty of ventilation must be given during the flowering period, and a pampas plume may be used to fertilise the flowers. As soon as the blossoms fade, a good watering with tepid water may be given: in fact, cold water should never be used with these first early plants.

Support the fruits with small pieces of birch: those from old brooms are suitable. Close the lights fairly early in the day, well syringing the plants, until the fruits commence to colour, when syringing should cease and more air be admitted. Nets must be put on early, as birds are particularly troublesome with early fruits. Even in the frames a net must be thrown over the lights: it being necessary to have a considerable amount of air admitted as the fruits ripen, otherwise the flavour is impaired.

Having thus arranged for the early supply, the next, and more important, is the main crop, and for this one of the best positions, fully in the open, where full sun and air may reach the plants, should be chosen. The ground should be deeply dug and liberally manured, sufficient to carry the crop for two seasons. I consider the best results are obtained by keeping the plants two years only, as a third crop often results in a great number of small berries. For this main crop, the plan I adopt is as follows: After the ground has been thoroughly prepared, lightly trodden and raked over, the plants are set out in lines 30ins. apart and 12ins. from plant to plant. Always plant with the crowns facing south, as advised before. Attention must be given, with watering, hoeing, and the removal of any runners that may be formed, as recommended for the early crop. Plants thus treated will give a good crop of fine fruits next season. After the first season's fruiting, and as soon as a sufficient stock of new layers have again been secured, all the alternate plants are cut out, finally leaving them all at 2ft. apart between the plants. The two-year old plants will then have room to develop and fill out the alloted space. It will at once be seen that, by close planting the first season, a full crop of fine fruit is secured.

Space should always be available for continuing this strawberry bed for the next season, so as to keep the main crop under one netting. A piece of ground may be cropped with early potatoes or peas, and thus be available in time for the planting of strawberries at the end of August or early in September.

The after-treatment of strawberries consists of removing promptly all runners and a considerable amount of the old foliage, together with all weeds and mulching; these should be burned. If the season has been dry, hoe the soil and give a thorough watering at the roots, to enable the plants to put forth new foliage and build up crowns before the winter months. A good dressing of decayed manure should be placed among the plants and lightly pointed in with a fork. Strawberries should never be dug between with a spade, and only lightly with the fork. Some time early in March the beds should be again gone over, and any vacancies that occur made good. Gaps in strawberry beds are always an eyesore. A small handful of bone-meal at this time (March), lightly pointed in, and, later, a dressing of old soot when the flower spikes are visible, will help the old plants considerably; or a dressing of some approved artificial manure may be applied before strawing down the plants for the next crop.



REARGUARD, A LATE-FRUITING VARIETY.

A word regarding the netting of these main-crop strawberries may not be out of place, as birds play havoc with the fruits if not properly netted.

Good strong posts, at the corners and at intervals in the lines between, are desirable. Oak posts, 3ins. square and standing 3ft. out of the ground, are excellent to carry the straining wires over the bed, using smaller stakes at intervals in line, thus dividing the bed into a series of squares when the wires are fixed, whereon the net rests throughout the season. Once the net is properly fixed there is no further trouble, ample room being secured to move freely under the net, and, to a certain extent, bird-proof. Half-inch wire netting should be employed, 18ins. deep all round the ground-line, and securely pegged down; on to this the net is secured, one place at the corner being used for going on and off to gather the fruits. Both net and posts last for a number of years if properly kept for this purpose. The vareties of strawberries are manifold for main crops, but such standard sorts as Laxton's Leader, Reward, Royal Sovereign, Utility, Bedford Champion, The Duke and Givon's Late Prolific may be relied upon, having stood the test of time. A few rows of that good old strawberry, Vicomtesse Hericart de Thury, should be included for preserving purposes; it is very firm and sweet, consequently most of the fruits preserve whole, and for this reason it is esteemed by many. It is an abundant cropper.

Having dwelt at considerable length on the main crop—which is, of course, the most important, a few remarks on the late sorts, thereby extending the season's supply, may be opportune.

LATE VARIETIES.

As already mentioned, strawberries are always appreciated so long as they are obtainable in good condition.

By reserving a goodly portion of the north border, and planting late varieties, the season may be considerably prolonged.

The ground should be well manured and prepared, as previously advised for other beds.

It will be noted that many of these late varieties are not of such a vigorous habit of growth. Consequently, they may be planted in rows 2ft. apart, allowing 1ft. between the plants, for the first season, removing alternate plants afterwards, as already described, eventually leaving all at 2ft. The varieties for late fruiting may include Waterloo, Trafalgar (two excellent strawberries, dissimilar in colour and ripening at the same time—a valuable addition for dessert), Givon's Late Prolific (another fine strawberry), Laxton's Latest and the newer Laxton's Rearguard. From these late strawberries fruits may be gathered for several weeks after others are over.

Should the weather prove at all unfavourable, lights may be placed over the fruits on inverted pots, nets being used over the lights as for the early supply.

I have found strawberries grown on the north border to fruit well for three seasons, growth being less rampant in such varieties and position.

Having thus described the various ways of prolonging the strawberry season, I venture a few further remarks.

It is an open question whether strawberries are cultivated as well now as in former years.

Certainly, as regards quantities for market they have undoubtedly increased. But from a private point of view, I do not think they are so well grown. One of the great drawbacks to the successful

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cultivation undoubtedly is the great difficulty in obtaining manure—good stable manure. Whereas in times past abundant supplies could be had from the stables, now very little, or none at all, can be had, as motors have taken the place of horses. Again, the high price, when the manure can be obtained, prohibits the liberal use of it, as gardeners would like to use it. Another cause is the shortage of labour in many gardens; the time cannot be spared for everything as in years past. To grow strawberries well, they require plenty of manure, and will pay for it in the long run.

I well remember growing that fine old strawberry, Laxton's Reward, plenty of fruits seven to eight to the pound, brilliant crimson in colour, and of fine flavour. It seems a pity some of these sorts go out of cultivation.

Strawberries, after being grown in the same garden for a number of years, deteriorate, much the same as do potatoes. Hence the necessity of obtaining fresh stock occasionally. Most of our nurserymen raise plants for sale annually, notably Messrs. Laxton Brothers, strawberry specialists, who have raised most of our new varieties, as well as the old favourites.

The present is a most suitable time to secure plants, and no better time than the present to make plantations for next season's fruiting, either by purchased or home-raised plants. I. HAWKES.

CORRESPONDENCE

FORTUNE'S YELLOW ROSE.

SIR,—From the description of the climbing rose on the Italian lakes, and its fragrance, I am pretty sure that the rose "M. L." saw there last spring is Fortune's Yellow—"Jaune de Fortune" as they call it on the Riviera. It succeeds well in southern England, but it needs *moisture* and shelter; hence its vigour and beauty on Lake Como.—E. H. W.

GLASSHOUSES.

SIR,—In the very interesting editorial leader of THE GARDEN of July 11th, every line contains matter for thought on the part of those who possess glasshouses. But I would like permission to refer to one only of the many points, namely, "the uses to which the glasshouse will be put during the coming season." One of my four glasshouses is unheated, and perhaps it may be helpful to others if I briefly state how I use it during the whole year. My year's treatment begins in November by planting stocks, Beauty of Nice and Empress Elizabeth respectively, in the side borders next to the walls, which are low. The remaining parts of the structure are filled with chrysanthemums in pots and lifted from the outside borders. In January the borders are sown with radishes, French breakfast varieties, and on both sides of the central path sweet peas are planted. Two crops of radishes are raised before their place is occupied by tomatoes, and in the meantime the stocks are yielding their fragrant flowers for cutting purposes. The sweet peas are cleared out at the end of June, also the stocks, and two rows of late tomatoes take the place of the stocks. In October the chrysanthemums are again brought in. At both ends of this span-roofed glasshouse roses are grown, being planted in the borders, pruned in late autumn, and yield pink, white and crimson blooms from early May to autumn—four lots altogether. This has been my plan with the unheated house during the past ten years. At a very small cost it has yielded a lot of valuable produce. Others may do similarly.—G. G.

PRONUNCIATION OF BOTANICAL LATIN.

SIR,—The following remarks may assist your correspondent F. C. King and any others who may experience the same difficulty. Pronounce long Latin vowels thus: e as a in *pl*a*te*, and a, i, o and u as in *f*a*ther*, *mach*i*ne*, *st*o*ke* and *r*u*le*; y as ui in *g*ui*d* (Scots), æ as i in *r*i*de*, and œ as oi in *v*oi*ce*. Short Latin vowels are pronounced much in the same way as long ones, but less broadly. If this is too difficult an exercise in phonetics, pronounce them as in the English *f*a*n*, *d*e*sk*, *s*i*ng*, *h*o*t* and *b*u*tcher*. Latin consonants are as in English except j and v, which pronounce as y in *y*ou and w in *w*in; c and ch are always as English k; g and s always as in *g*et and *s*end. The foregoing rules apply to pure Latin, but much of botanical Latin, so called, consists of modern surnames and place names with -ia, -ense, etc., tacked on to the end. It really does not matter much how these names are pronounced; the construction of most of them is so hopelessly bad that no conceivable method of pronouncing them would be correct. They should never have been coined at all, and the best thing to do with them is to leave them alone as far as possible, use the equivalent English name whenever there is one, and invent one when there is not; but if they must be tackled, the most usual way of pronouncing all the important ones will be found in Webster's New International Dictionary, which can be consulted at some convenient free library. In specific names commencing with a capital letter and ending with two i's, the second i may be omitted in speaking, and for that matter in writing as well; it is redundant, and its presence is due chiefly to a red tape regulation made by some conference or other. In ordinary conversation, when referring to a generic name by itself, the usual rules of Latin are often not followed; thus of the two instances mentioned by your correspondent cyclamen would in such circumstances be pronounced siklamen. It is to be observed, too, that some botanical names are Greek, not Latin.

The foregoing comments do not touch on the accentuation of pure Latin, that is, which syllables ought to be stressed and whether the vowels are long or short; this cannot be dealt with briefly, but the information can be found in the case of any particular word on referring to an ordinary Latin dictionary, one or more of which will be available at the nearest town (public) library. More could be added, but I will not trespass further upon your space.—H. A. BAYNE.

ROSE ARTHUR COOK.

SIR,—Can any of your readers who are experts on roses give me their opinion of the Rose Arthur Cook, and whether their experience is the same as mine?

I have four plants of this rose. On some the bloom comes perfectly true, a rich crimson, others on the same plant come with pink petals, and one almost a pink rose. In my rose house this difference did not appear, but I should be glad to know whether growers find that it has this habit. The blossom which came out pink was of a lumpy shape, and it had no characteristics of the rose as described. —LADY ARDILAUN, *Dublin*.

FEIJOA SELLOWIANA.

SIR,—This flowering shrub has done extraordinarily well this year and is a mass of bloom; it seems quite hardy. When at Messrs. Veitch's gardens in Exeter last week, the foreman complained of their plant not flowering. On seeing it, I found it was between two glasshouses in the shade, and there is no doubt it requires to be in full sun. A few years ago it fruited with me.—H. G. HAWKER, *Devon*.

OLEARIAS.

SIR,—I venture to add a word to Sir Herbert Maxwell's very interesting article on Olearias.

Yes, O. semidentata is certainly a very desirable shrub. I find that it stands a great deal of wind, as does chathamica; and its grey-green and silver leaves are of rare beauty, even if it were never hung, as it was recently, with its pale lilac, dark-centred daisy flowers. I put this very high among flowering shrubs for wild gardens.

There is a hybrid between O. stellulata and O. lineata which is a finer plant even than the type: the flowers are more striking and the plant is less liable to look ragged after flowering or after bad weather. It makes a larger bush than stellulata.

O. lacunosa is growing now in a few Cornish gardens. It appears to need shade. There is a delightful picture of a full grown bush of it in Dr. Cockayne's small book on the New Zealand flora.

O. ramulosa is a beautiful little creature, covered with small white stars; and O. Solandri, like virgata, is a good seaside plant.

Sir H. Maxwell has little use for O. Traversii, as its flowers are very uninteresting: but as a quick-growing shelter plant it has, I think, a very high value. It is a beautiful grey-green evergreen, always healthy-looking and trim, and flashes brilliantly white in the wind. It grows marvellously fast, making a tall hedge in three years from cuttings even in the poorest wind-swept spot. I have found very few plants so good for a windy exposure, especially if it is pruned down a bit till well established. I hear that they have an equally good opinion of it at Scarborough, where it is being planted extensively for shelter.

The one other olearia I want to refer to is O. oleifolia. The late Mr. T. Smith of Newry, that great expert, considered this, I believe, one of the best shrubs of recent introduction for windy seaside gardens; and its behaviour here seems fully to justify this. It makes a solid, well furnished evergreen, covered with white flowers in autumn, and thrives in the fiercest sea wind. I have planted it with O. Traversii and O. albida on a rocky bluff 600ft. over the Atlantic, with no shelter whatever, and it continues to thrive unscorched and undistorted.—W. ARNOLD-FORSTER, *Cornwall*.

FAILURE OF GYPSOPHILA.

SIR,—Under the heading "Failure of Gypsophila" a contributor in your issue of August 1st suggests the use of superphosphate for correcting a deficiency of lime in the soil. But superphosphate cannot fail to *reduce* the quantity of available lime. I have used it successfully for that very purpose in converting a somewhat chalky soil into a lime-free medium for the culture of ericaceous plants. The excess of phosphoric acid implied in the prefix "super" is responsible for the lime-reducing effect.—MICHAEL CHAMPNEYS, *Suffolk*.

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SIMPLE GARDENING

LAYERING BORDER CARNATIONS.

As the weather was very hot and dry for some time just before Midsummer Day and again for a time soon after, the work of layering border carnations was delayed in many parts, the soil being too dry and the wood of the plants rather hard. Layers should be rooted as early as possible, so that the young rooted plants can be planted in their flowering quarters early in the autumn to ensure a safe passage through the winter. But to those who love these flowers I would like to say, make preparations now for the layering of as many plants as possible in a short time and give them careful attention afterwards. During very hot weather I like to use more, rather than less, of the heavier part—loam—of the compost in proportion; and later in the season, more sand and leaf-soil, so that the compost will not retain moisture too much if a spell of rainy weather comes. The compost should remain sweet if new roots are to enter it freely. Carefully examine the parent plants and remove all foreign matter found under them and all faded leaves. Having mixed the compost, as suggested, be liberal when packing it around the old plants, so that the layers will have plenty of body to root into. Each layer should be denuded of its basal leaves, and cut, slant-wise, from the underside upwards and half way through the stem with a sharp knife. Place a tiny stone in the cut stem, bury that portion of it in the new soil, peg down and water when necessary till roots are formed.

HARDY BORDER FLOWERS.

The past summer weather has been very trying for all open border plants, except in soils low-lying and naturally moist. I know one garden where the tidal waters come near to it in open dykes and, about 3ft. below the surface one can always find water, however dry the season may be. The owner of this garden can always grow extra fine herbaceous plants in dry summers and has no difficulty in keeping the borders bright and in a neat condition. This is not the case where borders are high and naturally dry; such borders require much more attention throughout the season: it is necessary to clean the plants often and to remove the faded leaves and flowers; more water is needed and also good mulches to prevent undue evaporation from the soil. At the present time owners of such gardens should put them in good order. Do not remove any more green leaves and stems than absolutely necessary, because such action would weaken the plants. Some cultivators, in order that they may have very neat borders, cut down too much foliage. The stems, of course, die at the end of the season, but they should be allowed to fade as naturally as possible, then the roots and young crowns which are to bear next years' crops of flowers will be duly strengthened, not weakened, as is the case when the plants are slaughtered at this time of the year. Make notes now about future alterations and renew defaced labels.

"TAKING" CHRYSANTHEMUM BUDS.

There are still many lovers of the big blooms, those large, but refined and richly coloured. It is only by timely disbudding that one can secure the big blooms and by taking the right buds according to the varieties. Some, such as Mrs. Gilbert Drabble, William Rigby and Queen Mary, Majestic and Victory, must be disbudded during the latter part of July; the majority of the varieties grown should have their buds taken about August 10th to 20th, a few, such as Mrs. George Monro, Junr., bear the best blooms when their buds are taken late in August. I have seen fine blooms

resultant from buds taken late in September, but this is an exception and the happy medium is the best. Very early buds of naturally early sorts develop into coarse, badly-coloured blooms. Crown buds are dealt with first; they are the ones which are surrounded by young shoots as shown at *a* and *b* respectively. At *c*, lower down the stem, side shoots have been pinched out on earlier dates. If the crown bud *a* is removed and the side shoots grown on, we have terminal buds; *d* is the terminal to retain and side ones *e*, *e*, the ones to remove. Tiny grubs spoil many points of shoots and buds at this stage; examine curled-up leaves as the grub *f* will come out from *g*, quickly, and destroy it. The grub is shown at *h*, made clear, eating a young bud *i*. All eaten buds are useless. Plants free at night are infested the next morning.

ROSES IN POTS AND UNDER GLASS.

Plants that were flowered under glass in pots should be snugly placed on a bed of ashes outside and the pots buried to their rims in ashes or well rotted leaf-soil. The treatment during the summer months is very simple and consists of attention to watering and the removal of any buds that form, also young sub-lateral shoots, but do not cut away any of the hard wood. From this date to the end of September re-potting or top-dressing work should be done. As a guide as to the exact treatment most suitable at this stage, I may say, turn out the old balls of soil from the pots; if roots are plentiful, in fact, almost forming a network round the old balls of soil, it is a sure indication that re-potting is necessary. If there are not many roots visible, then top-dressing only will be sufficient. When re-potting, shift the plants to pots just one size larger than the old ones; if top-dressing is done, remove the old soil from the surface low enough to expose a few of the top roots. For both re-potting and top-dressing use a compost of fibrous loam with a 6in. potful of bonemeal added to each bushel. Secure sound drainage and pot firmly. Water carefully and leave the pruning till the end of the year, keeping the plants outside till late autumn. Permanent plants under glass should be kept as cool as possible and free from aphides. Prune in December.

POTATOES.

In some parts of the country potatoes will be quite satisfactory, in others they will be very unsatisfactory. I am referring now to crops generally—early, medium and late. Cultivators should not save seeds from their own gardens of any variety more than two years, after the second year the resultant crop, from home-saved tubers, often develops rust and the common diseases very badly and fail, too, to yield a full crop. A change of seed is beneficial and those obtaining it should always procure tubers from gardens and farms as far north as is possible of their own. But even seed from a neighbour's garden in the same village or district is better than one's own, after the second year. Now, just a few hints on saving one's own tubers for next year's planting. In each quarter and of each distinct variety, the best roots should be selected—those least ripened and possessing the most robust haulm. Lift these roots separately and retain seed tubers from them, not generally as the crop is lifted. Of course, a certain amount of exposure and greening is essential, but the tubers should never be allowed to get wet nor be unduly exposed to the sun. An ideal position for the tubers in shallow boxes is under tilted lights in a cold frame with mats on the glass for several weeks prior to placing them in the winter quarters. They should always be kept perfectly dry and in a cool even temperature so that they will remain dormant.

GEORGE GARNER.

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FAIR CROWNS. II—DELPHI AND APOLLO'S LAUREL

WE hear little of those apples mentioned by Solon as Pythian prizes, although they are represented on coins of Delphi, together with laurel wreaths. Probably they vanished all too quickly, and leaves would be a more permanent souvenir, and more akin to the Olympian prizes. The Pythian games, celebrated at Apollo's stronghold, Delphi, were only second to those of Olympia, and were a development of a small local festival devoted to Apollo and his lyre. These neighbourly competitions, chiefly musical, were reorganised as funeral games in honour of the victims who fought in the First Sacred War and in defence of Delphi. Such funeral games were common in old Greece, perhaps survivals of prehistoric sacrifices of prisoners or slaves at the graves of their masters, or of the sham battles which took their place; or perhaps it was thought that the souls of the dead would be pleased with the same sport as the living. In Homer's day, and later, they were merely contests of skill with weapons or muscles, between guests at the tombs of the great or in honour of them.

But, as in Olympia, people clung to the old picturesque legends explaining habits of which they knew not the origin. Delphians gloried in tales of Apollo and in his conquest over the huge serpent, or dragon, Pytho, the guardian of the oracle of Earth, an ancient shrine which preceded that of Apollo. Some said that the monster was ravaging the country when stopped by the arrows of the sun-god. As was customary after shedding blood, Apollo was ordered by Zeus to purify himself, a rite usually managed by sprinkling pure water on the culprit either with a torch from the altar, or with a branch of laurel, or even of olive. Therefore the god betook himself to the laurel thickets of the Vale of Tempe, at the foot of Mount Olympus, and tore off branches for this purpose and to crown himself, and to carry in his hand. Having fulfilled his penance, he went back to Delphi, and took possession of the now unguarded shrine of Earth—a curious fissure in the ground whence fumes giving extraordinary powers of prophecy were supposed to issue, took it over and made it one of the most famous oracles of antiquity. But the laurel tree in the vale from which he tore the boughs of "lustration" was providentially noted, and an altar erected beneath it. Thence were taken those sprays of laurel that were woven into crowns of victory for the games which were called Pythian, either in memory of the slaughter of the dragon, Pytho, or because the town itself was occasionally called Pytho also.

Laurels grew around the shrine itself and about the temple, and were always used in rites of worship of this sun-god; and to explain their presence, the legendary tale of Daphne arose. That innocent damsel was trying to escape from the unwelcome caresses of Apollo, and called for help to her mother the Earth—the same goddess whose oracle had been stolen by the god. In answer, a chasm opened beneath her feet and into it she slipped as a refuge. A laurel tree marvellously sprang up in her place, and when the pursuer arrived all he found was a handful of bays. The townsfolk probably believed that this happened at the oracular chasm, and that the very shrub imprisoning the nymph was still standing before the temple or in the Cave of Prophecies, casting its sombre shades over the Pythia, as the priestess of Apollo was called, when she was not referred to as a "bee." Here, having drunk of a sacred spring, fumigated herself with laurel leaves, and even chewed its sacred foliage, the priestess settled herself on a tripod over the marvellous earth-fissure, grasped the near-by laurel's trunk and invoked the sun-god. His presence was indicated by the shivering and rustling of his laurels, and thence he inspired the Pythia, who then uttered vague sentences, prophecies and commands, difficult to understand or to follow, but which were obeyed by all Greece as far as possible.

Now we understand why, since musical and dramatic competitions were important events at the Pythian games, centring about a Hymn to Apollo which related his exploits, the laurel crown became intimately associated with the arts, fostered by Apollo and his companions, the Muses. This artistic use of the laurel continued long after the last Pythian crown had crumbled into dust, just as laurel, in another aspect, as a symbol of victory, lingered long with the common people. Figuratively speaking, the custom of crowning a poet with "bays" has survived to this day, for England still appoints her "Poet Laureate." H. INGERSOLL.

FLOWERS AT HAYWARD'S HEATH

THE thirty-fourth exhibition of the Hayward's Heath and Mid-Sussex Horticultural Society was held in Victoria Park on July 29th and July 30th. This horticultural society is one which possesses some excellent gardeners as its members, and the show promises to develop yearly. The Hayward's Heath district is particularly favourable to the horticulturist, both from the climatic and soil points of view. A show held in this neighbourhood is well worth a visit from nurseryman or amateur, and an exhibit from either would not be wasted effort on the part of the exhibitor.

Some splendid exhibits were staged by the trade and amateurs. In the private section competition was very keen. The quality of the fruit, nearly all of which came from local gardens, was excellent. Mr. W. J. Yapp (gardener, Mr. H. Manton) again won the Paxhill Park Challenge Trophy for an exhibit of twelve dishes of ripe fruit. The cherries, grapes and peaches were perfect. Mr. C. T. Allen (gardener, Mr. F. L. Telling) won prizes for grapes, melons, tomatoes and cucumbers. The fine size and condition of the specimens deserve praise. The peaches grown by Mr. A. E. Pattenden, the gardener of Mr. R. Carver, were remarkably good. The exhibits of the Right Hon. Lord Denman (gardener, Mr. W. Mackay) were well grown and well displayed, and many of them won first prizes. Mr. W. Manton, gardener to the Misses Helme, arranged a good collection of hardy fruit.

In the section for single-handed gardeners and amateurs the number of exhibits in each class were small. Prize tomatoes were shown in this division by Mrs. Ivatt (gardener, Mr. C. Holman) and cucumbers by Mr. L. H. Strouts (gardener, Mr. A. Laker). A most successful exhibitor of fruit and vegetables was Mr. G. Thomas. Gooseberries and currants, particularly red currants, were of good quality. The specimens shown by Mr. G. Thomas were healthy, of even size and in perfect condition.

A collection of perennials shown by Mr. W. J. Yapp won the Society's "Coming-of-Age" Challenge Trophy. This same exhibitor was again this year awarded the Stewart Mackenzie of Seaforth Carnation Challenge Trophy for a display of perpetual carnations. The beautiful spikes of large-flowered gladioli and primulinus hybrids grown by Mr. W. D. Mackay were much admired. Carnations and star dahlias were well shown by Mrs. T. P. Warren (gardener, Mr. H. Nailor). When compared with the other floral exhibits, the sweet peas and roses were not outstanding, the stems were short and the flowers inferior in colour. The James Box Sweet Pea Cup went to Mrs. T. P. Warren. Phlox Elizabeth Campbell and Baron von Dedem were the two best varieties shown by Mr. W. S. Pool (gardener, Mr. J. G. Caswell). Good stocks were exhibited by Mr. Bridgden in the cottagers' section.

The collections of a number of distinct kinds of vegetables were admirably staged. Dr. G. T. Walters (gardener, Mr. C. Harris) was again successful in winning the Society's Coronation Challenge Bowl for a collection of vegetables. A very creditable group was staged by the Scaynes Hill Women's Institute. The peas and carrots exhibits were of good quality in nearly every case. Mrs. T. P. Warren and Mr. J. White showed prize potatoes. Well ripened onions were shown by Mr. W. D. Mackay. Peas and beans grown by Mr. W. Manton, won prizes, and Mr. P. W. Carver was successful in several classes. The *Mid-Sussex Times* Challenge Cup for vegetables was awarded to Mr. G. Keen.

A good group of gloxinias was staged by Mr. T. W. Thompson (gardener, Mr. R. T. Axbel) and a table of greenhouse plants by Mrs. Ivatt. Mrs. T. Sydenham won the silver challenge cup for table decoration in the ladies' section. The baskets of flowers and foliage were very good, Mrs. A. M. Swann gaining the first prize. In the children's section interesting collections of well named wild flowers were exhibited.

Several excellent trade exhibits made striking patches of colour in the tent. Mr. Elisha Hicks was to be congratulated on his first prize stand of roses. The arrangement and condition of the blooms left nothing to be desired. Beautiful blooms of W. F. Dreer, Los Angeles, the sweetly scented Mrs. E. Powell, together with Betty Uprichard, one of the best of the newer roses, were artistically displayed. At one end of the tent a prominent ground exhibit of hardy flowers was staged by Mr. James Box of Hayward's Heath, and at the other end Messrs. Allwood Brothers made a fine display with their carnations. Mr. James Box had a small lily pool in the centre of his group, and surrounding it were water-loving plants. At the back of this hardy flowers of all kinds were set out in a semi-circular bed. Messrs. Allwood Brothers showed several of their 1925 novelties, such as Beauty of Durham and M. M. Stoop, together with perfect blooms of Coral Glow and Laddie.

A wonderful collection of beautiful orchids was shown by Messrs. Charlesworth. Many fine varieties and species were included, and all in excellent condition. The Chez Nous Nurseries had an interesting exhibit of miniature Japanese gardens and dwarf Japanese trees in bowls. Roses were shown by Mr. Frank Woollard and Messrs. J. Cheals had many fine perennials among their exhibit of hardy flowers. Herbaceous plants, shrubs, climbers, alpines and gooseberries were shown by Mr. H. Hemsley. The stock-flowered larkspurs shown by Messrs. Daniel Brothers were greatly admired.

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THE SPREAD OF GARDENING IN AMERICA

WHEN the Garden Club of America visited the old gardens of Virginia this spring as the guests of the James River Garden Club, they felt themselves at the source of fine gardening in their country. Those old gardens have in them still the very flavour of England, that quiet beauty which only age can bring. And from England it was, of course, that the dwellers in old Virginia brought their love of gardening, their idea of the garden. Other parts of America, however, had gardens, too, in our early time—Philadelphia. New York, with the gardens of the Dutch, and much later, Rochester, New York, where gardening has flourished exceedingly for many years.

There was a time, however—perhaps about the 'sixties and 'seventies—when the pursuit was limited generally to a small amount of bedding out. A few fine old gardens were dear to their owners in various States, but the rank and file cared nothing for them. Then appeared a few gardening books, and a good monthly periodical devoted to gardening alone. This brought fresh life to the various horticultural societies of the country, and so the first garden club was born—the Garden Club of Philadelphia. This event—it has become an event, though not then so considered by its founders—has proved to be the one which more than any other has brought gardening and the love of gardening to Americans. We are known as passionate organisers; and no doubt it has hurt some amateurs to see our organising carried into this personal field. But see what this has done for America. Not only did the Garden Club of America spring from this Garden Club of Philadelphia, but hundreds of other clubs are now in active, happy existence, which, but for such organising, would not have been formed.

The Garden Club of America, of which Mrs. Samuel Sloan is president, is an organisation or more than sixty member clubs, with committees on such subjects as colour charts for flowers, bill-boards and road sides, international relations (which means nothing less gentle than visits to gardens of other countries), visiting gardens in our own country, flower shows, the national capital conservation of wild flowers, historic gardens and so on. A remarkably fine bulletin for members appears six times a year. This organisation is a very powerful one. It has a membership of clubs, not of individuals. Its effect on gardening as an art, is already vital, and the many garden clubs now springing up all over the land are due in large measure to the example and stimulus of the Garden Club of America. Forty garden clubs in New York State alone have lately formed a group of their own. This federation, according to one of its members, hopes to encourage "the garden for the poor, the near poor and the well-to-do." Besides these groups many garden clubs are coming into existence from month to month in all the States. The movement is growing rapidly. The Garden Club of America welcomes the formation of the Garden Club, Limited, in London, and has already pleasant intercourse with the new society.

Another group which encourages gardening, is the Woman's National Farm and Garden Association. This helps also to form garden clubs, though its main objects are more nearly related to those of the Women's Institutes of England, with which it has most friendly relations. The Society of Little Gardens of Philadelphia is doing a fine work; so is the City Gardens Club of New York. And in women's clubs throughout the country there are now many so-called garden departments which press the subject continually.

So far I have named only women's organisations. I remember Mr. E. A. Bowles' writing me once that he believed women were more interested in colour effects in gardening than in the individual plant; that men, he thought, preferred to deal with the latter. In view of this comment, it is really interesting to notice that men are foremost here in the special plant society. Men started the garden movement in America long ago, through the founding of the great horticultural societies of Philadelphia, Massachusetts and New York. In New York such men as the great botanist, Dr. N. L. Britton, Mr. Frederick Newbold, Mr. T. A. Havemeyer, in Boston the late Richard T. Saltonstall, Mr. A. C. Burrage, whose orchids have world-wide fame, are some of the leaders in these societies; while Professor Saunders in the Peony Society, Mr. John C. Wister in the Iris Society, and Mr. Horace McFarland in that of the rose, are certainly among the best of our amateurs and have made distinct contributions to American horticulture. To Mrs. Edward Harding, too, and to Mrs. Charles H. Stout, are due much of the present interest in the peony and the dahlia.

Of gardening periodicals for the amateurs, we have but two or three. We need a weekly like THE GARDEN. Flower shows are held now almost daily in all parts of the country, and at all seasons of the year. Here may I let the eagle flap his wings a little, and say that even in December and January in our wide land. shows of flowers grown in the open are held in Florida and California. They sometimes occur in unlooked-for buildings; banks welcome them to their foyers. In Michigan there is a growing tendency in its smaller cities, to have exhibitions of irises, peonies and gladioli, three flowers which men seem particularly to fancy. The great botanic gardens of the country are to-day immensely popular, the Arnold Arboretum (presided over by Professor Sargent, with Mr. E. H. Wilson as its explorer), the New York Botanic Garden, and that at St. Louis, Missouri. We look for a National Arboretum soon at Washington.

Our general type of garden, our best garden, is, I think, the modified English one. There are some great gardens Italianesque or English in manner; but it is the gardens of moderate or modest size that are generally being made to-day. As our houses grow within and without quieter, more comfortable in architectural lines, so our gardens begin to seem like parts of our houses, our actual places for living. What we owe to the great William Robinson, to Miss Jekyll, cannot be put into words. We can only say warmly to you in Britain, "Come into our gardens and we will show you what we have inherited from, and tried to learn from you."

I have named some of the concrete agencies at work in America toward the spreading of the garden. But there is another all-powerful one, without which organisations, societies, arboreta, could do little. It is the impulse toward beauty, which brings everyone in time to see that in a garden lies a happiness that is in no other possession. FRANCIS KING.

RANUNCULUS FICARIA (THE LESSER CELANDINE).

THIS little plant is not a true member of the Ranunculaceæ order, which has its sepals and petals in fives or multiples of fives. The lesser celandine has three deciduous instead of five persistent sepals and nine petals. Last spring I came across what is to me a new variety of this plant, one with double flowers. It was growing among masses of the ordinary single-flowered plants, and there were blossoms in every stage of doubling, from two whorls of petals to a densely petalled flower. The owner of the garden has left all these plants undisturbed and for many years the double-flowered variety has been gradually ousting its single-flowered relative. Clumps of the newer variety have made their appearance in quite another part of the garden. They appear to have a more compact growth than the single variety. This plant would be a pretty addition to the wild garden and a valuable one to the rock garden, as it blossoms so early in the year. I cannot share your poetical correspondent's aversion for the lesser celandine or see that it is a nuisance, as, so soon as it has blossomed, it modestly disappears. Old Gerarde thus described it: "It cometh forth about the Calends of March, and floureth a little after; it beginneth to fade in Aprill; it is quite gone in May and afterwards it is hard to be found; yea scarcely the root of it."

Many plants appear to change their characteristics by their own accord. One example is the bee orchis, which was at one time entirely fertilised by insects, but has for many years been tending towards self-fertilisation.

Then there is the yellow musk, which in the last fifty years has almost entirely ceased to manufacture scent. (There are rare cases where scented musk can still be found, but these become scarcer every year. In 1914 I found a clump of sweet-smelling musk near Guildford. In 1918 it was scentless!)

The musk has, apparently, found out how to fertilise itself, and so no longer need waste its energy in manufacturing scent to attract insects.

The double R. ficaria has modified the stamens of the single flower into petals, and so ceased to make pollen. At first sight this certainly appears to be an attempt to kill out its species, but if we go more deeply into the matter we may discover that this is not the case. Another native plant, Cardamine pratensis (lady's smock), has in some districts produced a double-flowered variety which has very gradually killed out all the

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single ones in its vicinity. C. pratensis evidently thought the matter well out, for, while nullifying its stamens, it evolved a scheme for continuing its race without them. Indeed, the double variety is much more prolific than the more frequent single-flowered lady's smock, or cuckoo flower, for each leaflet sends out roots and becomes a new plant so soon as it touches the ground. As they wither the flowers send up a flower bud from their centre which is *sometimes* single. May not the bee orchis, the musk and the lesser celandine have some such plan in their mystic minds? Such means of propagation is an evolution, since the manufacture of pollen and the formation of seeds—*i.e.*, sexual propagation—require a vast amount of energy from the plant and are done without by double-flowered plants. In the course of years the bee orchis and the musk, instead of fertilising themselves, may evolve a sexual reproduction.

There may be yet another reason for R. ficaria producing double blossoms. It flowers at a time of year when there is little sun and when very few insects are about to cross-fertilise its flowers. So perhaps it is to save itself from extinction that this particular colony of lesser celandines is turning its stamens into petals. VICTORIA SLADE.

KILLING SLUGS—A SIMPLE AND SUCCESSFUL METHOD.

WHEN a small boy, I was much addicted to "chemical experiments." Once I tried the effect of putting a slug into ammonia. The slug "fizzed up," dissolved away, and formed a jelly. The original experiment can be easily repeated. Most people keep ammonia in the house, and most people have an ample supply of slugs in their gardens!

During the war it so happened that my house and garden stood for long empty and neglected. When I again took steps to rehabilitate the garden, the slug pest had assumed prodigious dimensions. Gathering slugs by hand is a weariness to the flesh, especially about the small of the back. I called to mind my youthful experiment, and applied the discovery. The result was altogether successful. The method may not be new, but I never heard of it before, I imagine there will be many others in like case.

Buy from a wholesale drysalter a bottle of the strongest liquid ammonia. This is sold in "Winchester quarts" (rather less than a gallon), and is not expensive.

This ammonia is called by the trade name of "eighty-eight" ammonia. It is very strong. It is not a poison in the ordinary sense, but it is corrosive. It will burn skin or clothes and must be handled with care. If any does get on to hand or garments, wet the place with vinegar. This will neutralise the ammonia.

Do all mixing outside, and keep on the side from which the wind is blowing. One good sniff of this strong ammonia will make you take jolly good care to avoid a second! Do not mix more at a time than you are going to use, because, unless kept in a sealed vessel, it will go stale.

To produce a good working strength for use in the garden, mix about two breakfast cupfuls of the "eighty-eight" ammonia with two gallons of water. Very accurate measure is not essential. The mixture should just have a pretty distinct smell of ammonia.

Use an ordinary watering can with a rose, and after dark, when the slugs will be abroad, water the rows of plants. Every slug that comes in contact with the solution will cease to be, while the plants will not be injured in any way. On the contrary, the ammonia is of some manurial value. W. J. G. F.

BOOK REVIEWS

A MOST interesting and instructive French volume on ornamental trees and shrubs has come to our notice, "Les Arbres et Arbustes d'Ornement," by S. Mottet; published by J. B. Baillière et Fils, éditeurs, 19, rue Hautefeuille, Paris, price 50 francs.

After a few preliminary remarks on the constitution of trees and shrubs, their value in the garden from an ornamental point of view and the various uses to which they can be put either as isolated plants or in clumps, the author devotes the greater part of the work to an enumeration and description of woody, climbing and shrubby genera and species and their principal varieties which adorn our gardens at the present day. In addition quite a number of the most interesting new species which have been introduced from China during the last thirty years are figured and described. This section, which covers some 470 pages, is brought to a close by a descriptive table of 2,500 species, including many of minor interest.

Following this are a few chapters devoted to propagation, planting and other cultural details, such as pruning, much the same rules being laid down as those met with in English manuals on the same subject. Finally, a useful list of choice trees and shrubs selected for various purposes with regard to soil, climatic and general topographical conditions is given. This list will provide a valuable mnemonic to all professional growers and a serviceable guide to all amateurs who are faced with difficulties when planting for effect. The genera and species have been treated under their family groups, in each family the genera following alphabetically. Latin nomenclature is adhered to, while in the majority of cases the common name is supplied, which will greatly facilitate the work of reference.

The volume is dedicated to the memory of the late M. Maurice L. de Vilmorin, one of the pioneers of French horticulture, with whom the author was closely associated for a long period, being in charge of all the experimental work at the establishment of Messrs. Vilmorin's at Verrières-le-Buisson.

The book will be found of great service to all nurserymen and to amateurs who have already gained a little knowledge of trees and shrubs. To students of horticulture and forestry it is recommended as a work which gives a concise and clear exposition of the treatment of trees and shrubs, with the proviso, however, that the reader must have a knowledge of French.

THE title of this book, namely, "A Garden Timepiece," by M. G. Kennedy-Bell (Hutchinson and Co., Paternoster Row, E.C.4, price 7s. 6d. net), fascinates me. One is led to expect that indefinable something which is genuinely wanting in gardening books, and one's expectations are fully realised on turning over its pages. It is a well balanced book on gardening, in which the æsthetic and artistic sides of the subject are cleverly woven into an interesting story along with more practical and everyday details and problems with which the average gardener has to contend. The year's work is dealt with in a thoroughly business-like manner, indicating that the author is well acquainted with her subject, and the book serves as an excellent all-round guide to all gardening enthusiasts. It is charmingly written, yet withal it does not lose that vital force which is so necessary to a practical manual. The illustrations are of the very best, being the work of the late Mr. R. A. Malby, and these greatly enhance the value of the volume, which one can thoroughly recommend to all garden lovers. G. C. T.

THIS volume, "Systematic Pomology," by U. P. Hendrick (Rural Text Book Series, published by the Macmillan Company, New York, price 17s.), contains a systematic account of the commonest fruits represented by the best commercial and more widely known varieties in cultivation in America. As such it will prove useful to the practical as well as to the theoretical man in the identification of fruits. The book certainly marks a great advance in pomological study, and we on this side will find it instructive on that account. The first few chapters are devoted to general botany, which is a useful feature in a manual of this description. A chapter is given to each of the commoner fruits, such as the apple, pear, cherry, etc., wherein are discussed their characteristics and general cultivation. In looking through a systematic volume such as this is, we cannot but put forward a plea for the establishment of some international system of nomenclature which would at least tend to lessen the duplication and confusion which exists in some of these newer branches of botanical study.

PUBLICATIONS RECEIVED.

"A Class Book of Botany," by Ernest Stenhouse. (Macmillan and Co., Limited, St. Martin's Street, price 7s. 6d.)

"Plants and Man," by Professor F. O. Bower. (Macmillan and Co., price 14s.)

"The Journal of Pomology and Horticultural Science, Vol. IV, Nos. 3 and 4. (Headley Brothers, Bishopsgate, price 5s.)

CATALOGUES RECEIVED.

Messrs. Hazlewood Bros., Epping, New South Wales, Australia.—A useful list of roses, ornamental trees and choice flowering shrubs, giving brief notes on rose culture, with special reference to disease and also to the climatic conditions met with in Australia. One or two excellent half-tone illustrations enhance the value of this catalogue which we recommend to any of our readers interested.

Charles Turner, The Royal Nurseries, Slough.—List of Dahlias for 1925 including many fine new varieties.

One of the earliest bulb catalogues to appear this year is that of Messrs. Carters of Raynes Park. Besides consisting of lists of everything that a garden requires in the way of bulbs, this catalogue is noticeable for the excellence of its production. In the past, prospective buyers of seeds or plants have had to rely a great deal on their imagination owing to the lack of illustrations and inadequate descriptions, but since the war seedsmen and nurserymen have begun to improve their catalogue productions. For the number and quality of the illustrations this catalogue of Messrs. Carters is one of the finest that we have ever seen. The coloured cover is a reproduction of their admirable stand at this year's Ideal Home Exhibition, while the half-tone illustrations could hardly be bettered.

Messrs. Laxton Brothers, Bedford.—Strawberries and Small Fruits.

FOREIGN.

Messrs. J. B. Vanderschoot, Hillegom, Holland.—A well illustrated catalogue containing useful lists of all bulbous plants.

Messrs. W. C. Roozen and Co., Limited, Overveen, Haarlem, Holland.—A well illustrated List of Dutch Bulbs and Other Plants for 1925–26.

Windsor Rose Show.—An error occurred in our report of this show in the issue of July 25th. The report should have read "Messrs. D. Prior and Sons have won the King's Cup three times, while Messrs. Frank Cant and Co. have won it now two years in succession, including this year."

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THE GARDEN

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THE PROTECTION OF WILD FLOWERS

MANY of our readers will have read the appeal of August 10th for the protection of wild flowers, issued by the Society for the Promotion of Nature Reserves, of which Lord Ullswater is President and Sir Sidney Harmer the Honorary Treasurer.

For the information of those who did not see this, we print below the actual appeal.

"The Council of the Society for the Promotion of Nature Reserves has learnt with concern that many species of wild flowers and ferns in various parts of the country are in real danger of being exterminated, owing to heavy picking of the flowers or uprooting of the plants. The gravity of the danger has been increased by the greater accessibility of the country districts as a consequence of the development of motor vehicles. The extermination of any of the native flora would often adversely affect the amenities of the countryside, and would be an irreparable blow to the scientific study of this branch of botany. The Council, therefore, appeals to the county councils to take the necessary steps for the protection of the wild flowers in their several districts, by the issue of by-laws or in such other ways as may seem desirable to them. Much of the damage may be due to thoughtlessness and ignorance, and good results might be obtained if notices requesting the public not to pick the flowers or remove the plants were placed in suitable places and if, also, in such districts the children in the schools could be instructed in the harmfulness of heavily picking flowers or removing plants. It might be desirable in certain instances to constitute reservations for the protection of rare species. The Council respectfully commends the above suggestions to the consideration of the several county councils, which are so concerned with the welfare and education of the people of Great Britain.

In addition, the *Times* published a statement by Sir Sidney Harmer, who is Director of the Natural History Museum.

There is no doubt that this appeal is timely, for the destruction of our wild flora is enormous in parts of the country which are used as playgrounds by urban dwellers. The popularity of the char-à-bancs has opened out areas which, even before the war, were secluded and rarely visited by the town dweller.

Another cause is undoubtedly what the *Times* calls suburbanisation. The inhabitant of one of these mushroom garden cities is the same as every other Britisher, inclined to be inquisitive, and one of his first ploys is to explore the surrounding country, with the consequent transference of a number of wild plants to his own garden. This means a temporary decrease of wild flora in the surrounding district, but surely it is only temporary. The actual urban dweller is unknowingly much more destructive, for I know from experience the number of discarded bunches of wild flowers which are strewn along many country roads on a hot week-end. The city dweller in his first exuberance at being in the country on a fine day, allows his enthusiasm to run away and picks here, there and everywhere, with the laudable intention of retaining the memory of his day for as long as possible, by having flowers in the house, without realising the toil of carrying home a large bunch of flowers, always an awkward thing to handle.

Publicity is the obvious way to put a stop to this indiscriminate picking of the commoner wild flowers, publicity in the schools, above all, for children are the worst offenders. Notices on the roads should also help. The Society suggests the passing of by-laws by the local authorities, a suggestion to which I, personally, have the strongest objection. The British Isles is already sufficiently bureaucratic to make any addition to our laws and by-laws an immediate object of suspicion. For the city dweller to have his rare outings in the country controlled for him by orders that he must do this and must not do that is quite intolerable. The fault is caused by ignorance, not wilfully, and publicity is surely the obvious remedy. So much for the ordinary wild flower.

The rarer flora presents an entirely different problem. It must be remembered that a plant's rarity is not necessarily brought about by the depredations of human beings; also it must be remembered that the number of rare plants which are worthy of being grown in our gardens is comparatively few and that most of them are plants of the highlands and not of the lowlands. If some rather insignificant rarity has disappeared through a human agency, the botanists have themselves to blame, for only they know of its rarity. Saxifraga cernua, one of the least showy, but the rarest, of our native saxifrages, is a case in point. A fat clump of it existed to within the last year or two on the top of a certain Scottish Ben. Now it has almost disappeared. It is certainly not the fault of gardeners.

Unfortunately, it is the apparent loss of some of the lowland plants which is most severely felt. Sir Sidney Harmer points out the disappearance of Daphne Mezereum, the wild seakale, the Lady's Slipper and Osmunda regalis. Both from the loss of beauty and from the ecological side, this is

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unfortunate, but the loss falls chiefly on the latter, for three out of the four plants are common in gardens, and could be replanted again in their old haunts without very much trouble.

Personally, I doubt if the decrease in rare plants is so extensive as is imagined, except, possibly, within fifty miles of London. It is next to impossible to gauge the supply of a particular plant, for excellent field botanists, many of them unknown, have realised for a number of years the possibilities of extermination of rare species in their respective neighbourhoods and have guarded their knowledge jealously. I think we may take it that the rock garden has more scope for native plants than any other form of garden. I have seen dozens of excellent rock gardens, but only in the case of one, that I know of, does the owner search for British plants.

From the increasing interest taken by British gardeners in collecting in the Alps, it might be inferred that the same applies in our own hills. The case, however, is not analogous, for the enthusiast goes to the Alps to collect plants. On our own hills he shoots or stalks or fishes. His pursuits are different.

Some time ago a scheme was proposed for the formation of a national rock garden on the top of Snowdon, where all our British alpines could be collected and grown under observation. I have not heard anything further about it for at least a year, but it seems to me that a series of such gardens—one for cliffs, one for woodland, and so on—would be an excellent means of solving the question of the preservation of our native plants. The Swiss have done it with excellent results. The French were also testing it before the war at La Grave, above Grenoble, but apparently have not restarted it since the armistice. The original cost would not be heavy and the cost of upkeep would be light. Only three rules would be required in such a garden; that no plant should be picked, that no fire should be lighted, that no waste paper or refuse should be left on the ground.

This idea of entirely natural gardening has already received a strong impetus in this country with the formation of the arboretum at Bedgebury, under the auspices of Kew, and of Benmore, in Argyllshire, under the Forestry Commission, and of the wild garden at Glen Branter, which has been started by the Royal Botanic Garden, Edinburgh, as a testing ground for rhododendrons. It will be noticed that these three schemes are almost entirely given up to the cultivation of exotic plants and laudable though they may be, it seems to me that they might well be followed by similar schemes which would be entirely devoted to our own natives. E. H. M. C.

THE STEWARTIAS

THIS interesting genus of hardy shrubs, or small trees, has botanical affinities with the wild camellias. Both belong to the Natural Order Ternstrœmiaceæ, but the stewartias are deciduous and the camellias evergreen shrubs. Some confusion exists in the spelling of the name. In nurseries it is usually spelt "stuartia," but in the new Kew Hand-list of Trees and Shrubs and in Vol. II of Mr. Bean's book, "Trees and Shrubs Hardy in the British Isles," it is spelt "stewartia."

The genus is represented in our gardens to-day by six species, two from the eastern United States, three from Japan and one from China. It is on record that S. malachodendron was flowering in Mark Catesby's garden at Fulham in 1742, and that S. pentagyna was first introduced to British gardens in 1785. The stewartias, however, are comparatively little cultivated to-day, though they are most interesting and desirable shrubs, flowering in July and August.

THE DAINTILY CRIMPED AND CREAMY WHITE BLOSSOMS OF S. PENTAGYNA.

S. malachodendron, a native of the south-eastern United States, is a deciduous shrub up to some 15ft. to 20ft. in height. I recently saw a specimen approaching the latter height growing in a garden containing many interesting shrubs at Iver Heath, Bucks. The flowers are solitary, borne singly from the leaf axils during July and August, 3ins. to 4ins. in diameter, with five white petals and a central cluster of purplish stamens. Another name for this interesting species is S. virginica, recording obviously its native habitat. It is figured in the *Botanical Magazine*, tab. 8145.

S. pentagyna is a native of the southern United States. It is more spreading in habit than the last named, 10ft. to 15ft. in height, and as much or more in diameter. The blossoms are produced singly in the leaf axils during July and August. They are creamy white, sometimes with a tint of red on the outside, the edges daintily crimped 3ins. to 4ins. across with a central cluster of yellow stamens. The variety grandiflora, as the name suggests, is a form with slightly larger flowers and purple stamens.

S. pseudo-camellia is one of the tallest members of the stewartia family. Professor Sargent during his travels in Japan met with trees up to 50ft. in height with a trunk 6ft. in circumference. In gardens specimens are readily recognised by the upright habit of growth. The white, cupped blossoms are not so large as the American species, being 2ins. to 2½ins. across, produced singly in the leaf axils towards the end of July and early in August. The orange yellow stamens clustered in the centre of the flowers are showy.

S. sinensis is a native of China, and was first introduced by Mr. E. H. Wilson in 1901. He records it as a shrub or small tree varying from 6ft. to 30ft. in height, native of Eastern Szechuan and Western Hupeh. Plants have flowered in several British gardens. The first I saw were sent to Kew from a Devonshire garden in July, 1917. They were white, 1½ins. to 2ins. in diameter.

Two other Japanese species are in cultivation, S. monadelpha, and S. serrata, said to be a common wild tree in Japan 50ft. to 75ft. in height.

PROPAGATION.

The stewartias are not difficult to propagate by seeds, cuttings and layering. Increase by seeds is obviously the best

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method when obtainable, though if one possesses a plant with branches near the ground layering is readily accomplished. Cuttings made of the half-ripe new shoots can be rooted in a sand frame with slight bottom heat during July, and later in the season more mature wood can be inserted in sandy soil under a west wall and covered with a cloche.

Provided it is well drained, stewartias thrive in peat or light loamy soil. When preparing positions for planting, add leaf-mould and peat to loamy soils, and sandy loam and leaf-mould to peat ground. At Kew the best plants are growing in beds of the Mediterranean heaths, which served as a protection when they were young and keep the surface soil cool in summer. One important cultural consideration is to plant in cultivated beds or borders where the surface soil can be stirred, and mulch with liberal supplies of leaf-mould and old hot-bed or mushroom manure.

A. OSBORN.

THE UTILISATION OF GLASSHOUSES

THIS IS AN ARTICLE TO SHOW HOW A GREENHOUSE CAN BE MADE TO GIVE A HANDSOME RETURN BY FORCING EARLY VEGETABLES FOR WHICH HIGH PRICES ARE OFTEN GIVEN.

I HAVE just completed a round tour of the British Isles, and have visited hundreds of establishments where the proper uses of glass does not seem to be fully appreciated. I saw and interviewed many disgruntled gardeners, who complained that their employers were jibbing at the cost of the gardens—"As if they were meant to pay" I was informed! But on carefully looking round I found ample evidence that, even though they knew it not, the employers were more than justified in their attitude. Glasshouses were full of rubbish—canes, raffia, old cans—all the impedimenta associated with gardening.

Now to give shelter to these necessary but most untidy-looking articles under glass is decidedly not economical, and I propose to proceed to talk about certain crops which, at this time of the year, might well be grown to advantage and financial profit—two items which do not usually go together. Let us deal with beans and mint first.

MINT AND BEANS.

Each of these crops may be grown either in frames or heated glass houses at very little cost. The best bean to grow is the French dwarf variety known as Canadian Wonder. It is a heavy cropper and has a nice, long, dark green pod well known and liked by salesmen. Another kind which might well precede Canadian Wonder is Earliest of All. This sort is a bit quicker coming to maturity than most, but does not crop so heavily. It also likes a little more heat. The beans may be planted at once in thumb pots and allowed to germinate in the warmer atmosphere of the propagating pits. When the two seed leaves are well out, spray the plants daily with water until the leaves have thoroughly expanded.

A SAMPLE OF EARLY POTATOES GROWN ON THE FLOOR OF A HOUSE.

They may then be planted into large chrysanthemum pots, two to a pot, and placed in their permanent quarters. Start them off with a day temperature of 70° to 75°, with 10° less for the night. The great tip is to force beans very rapidly, so that they are tender and of a good length. Cease spraying the plants as soon as they commence to come into flower, and keep the house as dry as possible. Water twice a week with a dilute solution of liquid manure. When it is seen that the flowers have "set" and the young beans are "running," raise the temperature to 85° to 90° until fit to pick, which will be when the pods are from 6ins. to 8ins. in length. The whole crop should be taken in two pickings at about ten days apart. When ready for market the salesman should be informed what to expect the day before they will be despatched, for beans are very expensive. The small wooden "twelve pound" tomato box is an ideal package in which to market the crop, and the boxes should contain an even number of pounds. Lay the beans evenly in the container after first covering the inside of it with blue tissue paper. The box should be quite full and tight after packing, otherwise the beans will shift about during transit and will arrive in the market bruised and broken and valueless.

FORCED BEANS IN A GREENHOUSE WITH A BACKGROUND OF TOMATOES.

For really good stuff, young and well grown, the sender may expect to receive as much as 10s. to 12s. per pound during February and March. After then the price gradually drops to 2s., at which price it hardly pays to grow. When finished, the plants should be removed and the house got ready for tomatoes.

Mint is one of the most profitable crops I know of to grow, and is highly profitable if handled in the right way. In most private gardens there is always a good mint bed, which in the winter months does nothing. There is no reason at all why the whole of it should not be forced at once, and there would still be plenty left for stock purposes next season. The ideal way is to prepare for the forcing during the month of August by inserting cuttings of the mint in a moist situation. When they have become established, which will be in about a fortnight, the beds should be hoed twice a week and until the runners commence to cross the beds. When this is seen, all cultivation should cease. When the plants have flowered and the foliage has died down, cut all the stems off at ground level, and leave alone until the beginning of December. Now top-dress the beds with a light mulch of strawy litter to encourage the young green shoots to sprout. During the first week in January the plants may be lifted and either boxed or planted straight into borders under glass. Just spread the roots matted as they are evenly over the surface of the box or border, and cover over with 2ins. of fairly fine soil, and water in at once. No heat at all must be applied until the shoots are well above the surface of the soil. This is very important, for crooked, immature and diseased mint is the inevitable result of trying to force before active root action has commenced. When the

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right time arrives, then put on 90° of heat and spray the mint foliage frequently during the day, giving a final damping down before closing the houses at night. When the young tender stems are about 3ins. in length, give a very slight top-dressing of nitrate of soda and water it in at once. This will give colour and luxuriance to the leaves.

The first cut may be made when the crop is 6ins. high, and bear in mind it should be cut, not pulled. Do not take any weak, spindly stems, for these will thicken out when the first cut has been taken. The mint should be bunched, tied and placed in luke warm water for an hour or two, when it will be found that the leaves have rearranged themselves nicely. A bunch consists of as much mint as can be comfortably held in between the fore finger and thumb. Tie the bunch low down so that the salesman may suitably display the contents. Before packing for market the bunches should be well drained, or they will heat up during the journey. Pack an even number of dozens of bunches in a box similar to that recommended for beans, advising your salesman when sent. Anything up to 15s. per dozen bunches will be returned, and you can cut the crop four times before throwing the roots out in preparation for tomatoes. Odd bunches, of course, should not be sent, and it rarely pays to send under one dozen bunches at a time, but a dozen and over are welcome in the market.

I have purposely not mentioned many other crops that might be grown and forced, such as seakale, rhubarb, mushrooms, for to have a little of everything is worse than useless commercially. Concentrate on one or two really profitable crops and stick to them until, in a very short time, your "mark" will become known on the market, and the stuff will sell on sight. Tomatoes, up to a point, are a paying crop, but the private cultivator must be very early with them, or he will clash with the Worthing and Channel Island stuff, to his serious disadvantage. Early English tomatoes will make 2s. 6d. per pound easily if well grown and of good colour. Kondine and Comet are two of the best kinds for market, which likes a medium-sized, highly coloured and smooth-skinned fruit. Here is a tip about tomato growing which has put thousands of pounds in the pockets of the Guernsey growers. It is fairly easy to grow tomato plants, but it is not so easy to get the first trusses of bloom to "set," despite the vigorous use of the rabbit's tail! Try starving the young plants just after they have been put into their permanent quarters. Keep them very dry. The best "setters" are those which look blue, thin and wiry, not the big, hefty, coarse-growing ones. The reason is that Nature, in the effort to preserve its species, hurriedly causes the half-starved tomato plant to throw a bloom which invariably "sets" rapidly and well. When this has been accomplished, then feed hard so that the first truss may be fed and the fruits properly developed, while at the same time the upper trusses are setting. After the fruit of the first truss has been picked and marketed, nip out the top of the plant (commonly called "stopping") and top-dress the border or pots, as the case may be. Give heavy applications of liquid manure. Unless there are large quantities grown it will not pay the grower to send to market after the price has dropped to 4d. per pound. Concentrate on getting those first two trusses well "set," for it is cheaper, and therefore more profitable to grow 100lb. of tomatoes at 2s. 6d. per pound than ten times that quantity at 2d. or 3d. per pound.

STRAWBERRIES

form one of the more highly paying crops which can easily be grown by the private gardener. Very few commercial houses indulge in them, for the simple reason that it would be impossible to give them the detailed and individual treatment so necessary to luxury crops pure and simple, so there is a clear market with a good demand.

Strawberry plants for forcing should be selected from healthy plants growing outside. Maiden runners are chosen about August, and are pegged into small pots *in situ*. When they have well rooted and are growing independently of the parent plant, the runner may be severed and the plants potted up into large 60's. For convenience it is usual to bring the batch along in cold frames near the forcing pits into which they will go when the right time arrives. Now the plants will require rather special treatment in both manuring and watering. They must never be allowed to get bone dry, or they will produce only blind flowers. Never use concentrated nitrogenous manures at this stage, or, again, only blind blossom will come. Bi-weekly applications of dilute liquid cow manure and soot will help enormously in the building up of the flowering crown, which must be fat and plump to ensure getting the best results. When the crown commences to show signs of activity, which will be about the last week in November, bring the plants into the forcing pits and give them a temperature of 60° to start.

Spray overhead frequently so long as the flower is not present. As soon as it is in full bloom, cease to spray, and ventilate freely on warm, sunny days. After the flowers have "set," raise the temperature and give a slight top-dressing of Clay's Fertiliser. Lightly sprinkle chaff or some other suitable material on the tops of the pots so that the fruits will not get splashed and gritty. It is a good plan to suspend the fruit trusses on to a forked stick so that air and light may surround the fruits.

Then comes rather a critical time with the plants, for they must have sufficient heat to keep them moving and the fruits swelling, at the same time they must have ample air, which must freely circulate among the plants. Now follows the most anxious time of all, the marketing.

Carefully cut the fruit with its stalk and place singly in the one pound punnets which the salesman will supply. Line the punnet with clean strawberry leaves and try to arrange the fruits so that they rest individually on a leaf. A little practice will soon make perfect, but it is advisable to practice with small potatoes or something similar at first. The punnets are packed in special "trays" supplied by the salesman and sent off to the market by passenger train. Prices returned may be anything from 10s. to a guinea per pound. If it can so be arranged that the fruit will be ripe by about Christmas-time or New Year's Day, or at any festival time, such as Whitsun or Easter, the price will be high. The luxury hotels are always on the look-out for something unique and are ready to pay well for it. The best variety to force is our old friend Royal Sovereign—it cannot be beaten for flavour, shape and hardiness.

NEW POTATOES

are so comparatively easy to force that one cannot help wondering why those with some glass do not utilise it more for this crop.

I have always preferred to force potatoes in large chrysanthemum pots, since the plants are so much more under control. But it is quite in order to plant them direct into the borders. New potatoes at Christmas and from then onwards to April will make without trouble anything from 1s. to 2s. 6d. per pound, and to take an average crop, the weight would pan out at about half a pound per plant.

The seed chosen should be well ripened and about the size of a hen's egg. It is better to sprout it on trays in a light, airy loft or shed. There may not be much in this from the point of view of earliness, but a sprouted seed potato grows right away as soon as planted, with no check of any kind, whereas a non-sprouted tuber has to wait in rather a wet, cold medium until growth commences. I prefer the waiting period to take place in the sheds. When the shoots are about half an inch in length the seed may be cut and planted at once about 4ins. in depth in the pots prepared. From the sized seed mentioned it will be possible to secure two nice "sets," each with two fine sprouts. Having planted and installed them under glass—either heated frames or greenhouse will do—thoroughly water in and leave alone for at least a week. It is fatal to overwater potatoes. As the growth advances feed once weekly with dilute liquid manure, and a mulch may be given round the tops of the pots of old and well rotted stable manure. Suspend long strings of coir fibre from end to end of the house 6ins. over the top of the pots so that the foliage will not become entangled. Maintain an equable temperature of 65° at night and 70° in the day. After the plants are full grown and the foliage commences to turn a little yellow, the crop is ready for lifting. If dirty, the tubers may be very carefully washed, but the very greatest care is necessary here, or the tender skins will become rubbed and the general appearance ruined for market purposes. Pack very carefully in non-returnable wooden boxes which will hold exactly 14lb. (the boxes are supplied by the salesmen) with a cushion of soft wood wool at the top and bottom of the package. There should be no movement of any kind inside the box after it has been packed.

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The best forcing variety is Dargill Early. It is a nice white-fleshed kind and kidney shaped. The best prices are always obtained by kidney-shaped potatoes of a medium size. Do not make the mistake of waiting for the crop to become larger, for the lowest prices are always returned for the largest new potatoes, and you have the extra rail carriage in addition. The most profitable time to market the crop is January, February and March. Before I leave the subject of glasshouse crops let me say that all special stuff of this description should always be neatly packed up in small quantities. The packages sell more readily on the open market, for it is highly priced and prized, and as such has rather a limited market. If the grower does not do this, then the salesman does, and either charges you for the work or takes the benefit of it himself, returning to you the price your indifferent packing justified. Do not ruin the work of months, maybe, by not exercising care in packing and grading. Luxuries need luxurious packing, and it more than pays. SIDNEY P. WELLS.

INTERESTING PLANTS

IT is very welcome, to at least one reader of THE GARDEN, to find the Editor in a recent editorial championing certain plants for their *interest*, since most people are inclined to apologise for a plant whose decorative value is not its only claim to a place in the garden. Yet the beauty of a flower is no more an intrinsic quality than its association with folk-lore, legend or history, and we need not accuse ourselves of sentimentality or any falsification of feeling if we like a plant the more because it was praised by Parkinson, or because it has struck out a new line of adaptation to its surroundings, or even because it is fabulously difficult to grow.

It is tempting, with the lead given, to put in a further word for this not very popular kind of gardening, though we may have learnt to look upon the description "interesting" in catalogues as a forlorn bid for approval rather than a warm recommendation. The Editor shows how a tour of the garden may also be a tour of the world, and we might, if we cared to, make the expedition more complete by grouping together plants of one country so as to bring out their peculiar characteristics. Cassiope tetragona, Rubus arcticus and Loiseleuria procumbens would reproduce the wind-swept moorlands of the Arctic; cistus, lavender, rosemary and helianthemum the sun-baked maquis of the Mediterranean basin. A group of olearia, Veronica salicornioides, V. cupressoides and Raoulia australis might not evoke a very true picture of New Zealand, but it would bring out the oddity of the Antipodes where daisies grow into trees, veronicas imitate conifers or club-mosses, composites look like sheep and gentians are white.

If almost any Chilean shrubs are put together (with Tropæolum speciosum growing through them if your garden is north of the Trent), they will show that red and orange are the typical flower colours of their country.

We can travel through time as well as through space in the garden and recreate a piece of Elizabethan England with a box edging, crown imperials, a Damask rose bush, clove carnations, "melancholy gentlemen" (Hesperis tristis matronalis), gilded rosemary and many another plant described by Parkinson.

The Elizabethans seem to have had a taste for the monstrous and fantastic, which is perhaps characteristic of any period of exuberant intellectual vigour; it comes out clearly enough in their drama, and we can illustrate it in the garden with the rose plantain and the Plymouth strawberry (these still exist somewhere, but not in catalogues), the "frantick or foolish cowslippe," green primroses, striped roses and freaked gilliflowers.

The mediæval herb garden is easily reproduced, but it is frankly an intellectual curiosity, for most of the old herbs which have passed out of general cultivation have only the beauty of their names and the fragrance of romance to recommend them. An equally interesting but more decorative picture could be made of the doyens of the garden, the Provence rose, hollyhock, Madonna lily, marigold and purple iris, which are probably the oldest flowering plants in cultivation in western Europe. The old "apothecary's rose" (Rosa officinalis, a deep red Gallica) might also find a place for its fragrance and the rich colour that gave it so great a reputation, on the principle of sympathetic magic as a tonic and cordial, that it became the mediæval equivalent of pink pills for pale people, and a later age claimed to have found that its petals were peculiarly rich in iron. Moving forward through history we can recall the prosperity of the Dutch Republic with a piece of topiary and a few flamed and feathered tulips, of which Zomerschoon, Mr. Jacob tells us, is the oldest variety in cultivation. The moss rose, especially Oellet Panaché, striped pink and white, might stand for the Second Empire, and loves-lies-bleeding, though it is a very old garden plant, for a slightly faded Victorianism.

These are a few plants that we can use to illustrate impressionistically certain ideas. There are many others too numerous to mention, and, indeed, there is scarcely a plant in the garden but has some individual characteristic or some history attached to it, which, for those who care for such things, will bring it within the category of interesting plants, and will create that desire for possession. F. A. HAMPTON.

VERONICA CUPRESSOIDES, A TYPICAL NEW ZEALAND PLANT.

THE NEXT NUMBER IS OUR SPECIAL BULB NUMBER. AMONG OTHER ARTICLES ARE:

BULBS AND TUBERS FOR THE ROCK GARDEN, by W. Irving.

BULBS AS CUT FLOWERS, by H. Avray Tipping.

MAY-FLOWERING TULIPS, by Norman Lambert.

SOME MUNICIPAL GARDENS OF LANCASHIRE.

DAFFODIL CULTIVATION IN THE OPEN AIR.

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NOTES OF THE WEEK

RED HOT POKERS.

THE torch lilies or kniphofias are probably the most prominent flowers in the herbaceous borders as I write. They are decidedly early this year, after a hot and dry spell, lasting some eight weeks, and, last winter being a specially open one, they were not crippled in any way.

I have not seen many new varieties of kniphofia these last twelve years and this selection may seem rather old—but it is good and hardy. It includes rufa, typical of the red hot pokers, *i.e.*, bright yellow, tipped with red; Tuckii, a peculiar shade of red, fading off to yellow; caulescens, massive spikes of crimson and yellow; corallina, scarlet shading to a bright orange; nobilis, also massive and distinct in colouring; floribunda, a rich crimson; Saundersi, orange, shaded vermilion; grandiflora, crimson orange; the yellows, Lemon Queen, Chloris, Ophir, Goldelse, Obelesque and Lachesis.

Though the majority of kniphofias run about 3½ft. to 4ft. in height, it must be noted that there are real dwarfs and giants. Of the above, caulescens, Saundersi, nobilis and Ophir are tall and tower at the back of the border to some 6ft. On the other hand corallina, rufa and Goldelse are under 2ft. in height; while good plants for the border, I like them best in the rockery, where their stiffness and gaudy colouring adds a charm to the general appearance.

Lucky folks in the south find these plants quite hardy, but we in the north have to be careful in winter. Soaking, cold rains are more destructive than frost, but a covering of ashes and a well drained site keeps them safe during most winters. As the colours cannot be conveyed in words to readers, I urge them to note varieties when they see them at shows and in gardens, and then to buy as they decide afterwards; there are many more kinds than I have mentioned, but, at any rate, this selection was as good as any back in 1914.—CLYDESDALE.

ERICA CINEREA.

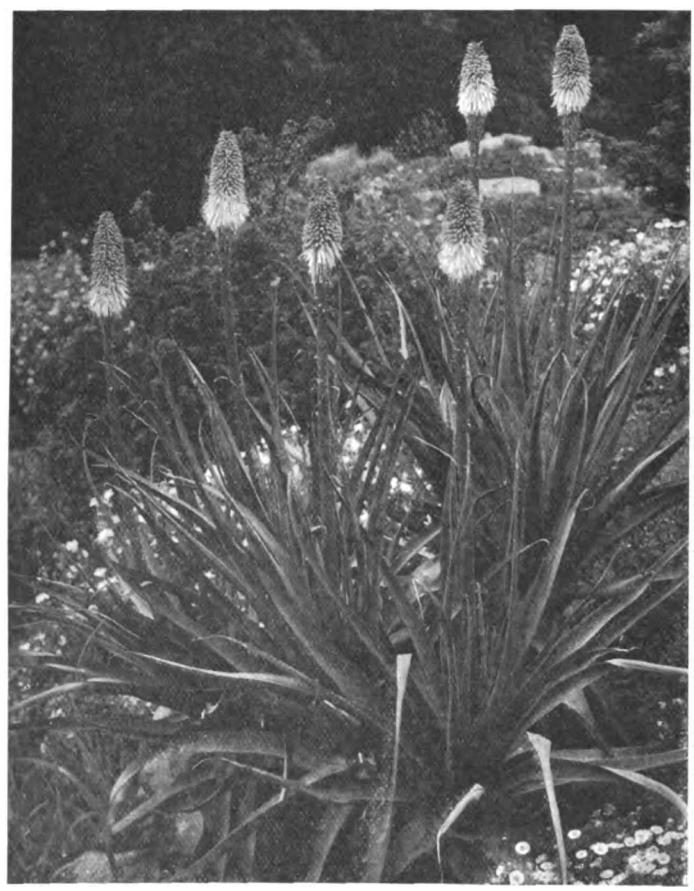
IN many respects our familiar bell heather and its varieties is one of the most useful and beautiful of its race. The earliest to come into flower of the summer-autumn species, E. cinerea will herald high summer in the heath garden with those billowy masses of purple, rosy red and white which, in wealth of colour and period of blooming, are not excelled by any other.

Always the first to show colour is E. c. coccinea, this being, perhaps, the most precious of the many forms of this variable species. With an almost prostrate habit, this very dwarf variety may at once be distinguished by the much darker, metallic green of its foliage, amid which the opening buds gleam like rubies, and so devoid of blue is the intense crimson of the full blown corollas that in some lights this colour approaches that scarlet hue which has earned for this delightful plant its varietal name and in the possession of which it is, I think, unique.

In E. c. atropurpurea the flowers are, again, a brighter, more crimson purple than in the type, and this charming form, while being considerably taller and bushier than the preceding, is not so bold and massive as, let us say, the excellent E. c. rosea. The latter will, even in a dry, poor soil, make rounded hummocks up to 2ft. in depth and covering a square yard or more, and these, from late June to September, will be enveloped with their splendid racemes of rosy crimson flowers. While I have no quarrel with E. cinerea for possessing that suggestion of magenta which an infusion of blue imparts to its generous blossoms, E. c. rosea, to retain its distinction, should be practically devoid of that shade, and in a good form it certainly is.

Fuller in tone than that of the average wild specimen is the sumptuous colour of the new variety, Victoria; Frances affords a note of distinction with its cerise bells; and among other late-comers both Apple Blossom, white with a wash of rose, and the very chaste pallida in pale shell pink, promise to be decided acquisitions. There is room for a better white E. cinerea than that which usually represents var. alba, the latter, in spite of the darker green foliage, somehow failing to reach one's expectations.

E. cinerea in all its forms is a plant for dry, well drained, sunny slopes, preferably stony. It is by no means always a peat plant in nature, preferring rather, as far as my observation goes, the light loam of rocky hillsides, leaving E. Tetralix and Calluna vulgaris to cover the damper, more peaty areas. In our heath garden it flourishes in a crumbling, sun-beaten shale, where it is often intensely hot, and there it seeds freely. A little leaf-mould may sometimes be used at planting time, but beyond this the plants never get any attention. Year after year they continue to yield their splendid masses of colour, and that at a season when flowers are often few. No heath carries on for such a long period without deterioration as this one, and these facts mean very much in these days, whether the gardener does his own work or has to engage others to do it for him.—A. T. JOHNSON.



KNIPHOFIA CAULESCENS, WITH MASSIVE SPIKES OF CRIMSON AND YELLOW.

ROSES FROM CUTTINGS: A COMMON ERROR.

VERY soon now those who wish to propagate roses will be turning their attention to securing and planting cuttings. It is, as we know, a simple operation in selecting shoots that are ripest, preferably those having a heel, and it is generally conceded that it is best to plant them in a bed to themselves in a sheltered quarter. What is not so generally recognised is that for the first twelve months or so no attempt should be made to interfere with them, and on this account they should be given not less than a minimum space of 12ins. between each cutting for dwarfs and more in the case of climbers. Too frequently this rule is honoured more in the breach than in the observance, the result being that before the autumn of the following year, the earliest time one can remove them with anything like safety, they become overcrowded. One is never far wrong in erring on the side of liberality when planting cuttings of roses.—W. F.

OLD FASHIONED BORDER FLOWERS.

DURING the last twenty-five years I have visited many gardens over Britain and I notice that what I might call old-fashioned border flowers are slowly but surely disappearing. Outside some fifty kinds which are common to all gardens over the country, each district has a certain further collection peculiar to that district alone (I refer to genera and species, not to varieties), but I am perfectly sure that where there are hundreds there once were thousands in the days when a large garden was filled with many kinds and before the cultivation of choice varieties of a certain few kinds became all the rage. It might be argued, of course, that some are no loss, but my reply is that the loss may be irretrievable and a future generation may be sorry for it. Is it not worth while trying to do something before the loss becomes greater? Personally, I suggest that large towns and institutions might run a "museum of plants," a border or borders filled with these old flowers, which gardeners, I am certain, will readily supply gratis. Head gardeners in our large towns are hard put to it to find money for their horticultural ideas and often, from necessity, fill long borders with repetitions of little value; perhaps they would welcome the suggestion and, stating that they were willing to receive old and uncommon plants, select—like the museum authorities—and plant. Extra work would be involved, but, if they only received during a certain week in autumn and another in spring, it might become possible. Of course, Sir, I only tentatively put all this before you and your readers; perhaps some will agree with me that it is worth while trying to do something, and discussion may indicate what is best.—H. A.

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THE SCARLET LYCHNIS.

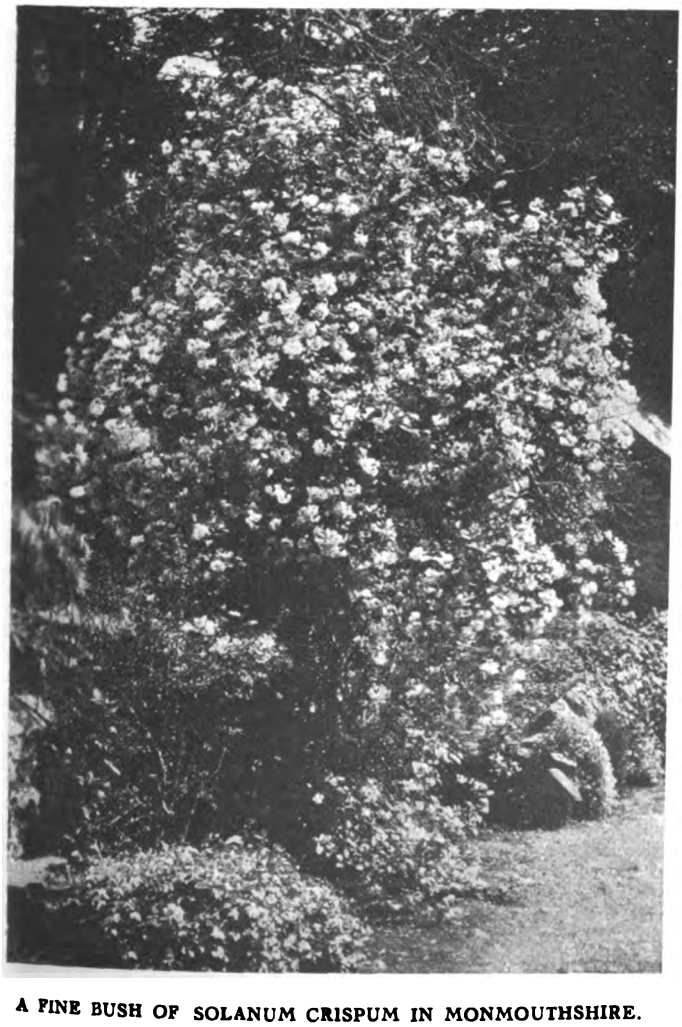
THE brilliant weather, which has lasted for some time, appears to have suited the scarlet lychnis, L. chalcedonica, well, and in the glowing sun its flowers have given us perhaps the most vivid colour in the herbaceous border. A small plant is of comparatively little effect, but one with a dozen or more flower stems surmounted by their large heads of bright scarlet flowers is ever acceptable in the borders in June, July and onwards. It is of tall stature in good soil, and may vary according to its position from 3ft. to 5ft. or even more. It has also, many of us consider, an additional interest, owing to the fact that it is one of the oldest plants from abroad which have been grown in British gardens. It is mentioned by Gerrard in 1596 and our venerated John Parkinson appears to have thought very highly of it, as, besides commending L. chalcedonica in his "Paradisus," he has chosen this flower to be immortalised in connection with his portrait, which appears in that monumental work, by carrying in his hand a head of the scarlet lychnis.

There are several varieties of L. chalcedonica, but some of these are much less plentiful than they were even as late as thirty or forty years ago. The single scarlet one, which can be raised from seeds, as well as by division and cuttings, holds its own well, but the double variety, with similarly coloured flowers, is much scarcer. Then there are the single white and double white varieties, L. c. album, and L. c. album plenum, with a rare flesh-coloured one, which I owe to the kindness of M. Hoog of Zwanenburg.

The scarcity of the double varieties is probably due to the comparative difficulty of their propagation. They are generally propagated by cuttings, and these should be from the flower stems cut into lengths before the flowers expand, early June being the best time, and struck under glass. Large plants of these and the singles may be increased also by careful division, but Mrs. Loudon says (and she was a generally reliable guide in such matters), that flowers from plants of L. chalcedonica, propagated by division, are generally smaller than where cuttings have been employed. This is rather curious, if correct. I have not raised the single white and flesh coloured varieties from seeds, but it is probably the case that only a proportion of the seedlings would come true to the parents. I know of no double flesh-coloured variety. Anxious as one often is to possess distinct and rare varieties of reliable and excellent border flowers, I think there can be no two opinions regarding these varieties of L. chalcedonica, and I venture to assert that none of the others can equal in value good plants of the old scarlet forms of this grand flower, both single and double.—S. ARNOTT.

SOLANUM CRISPUM IN THE SOUTH-WEST.

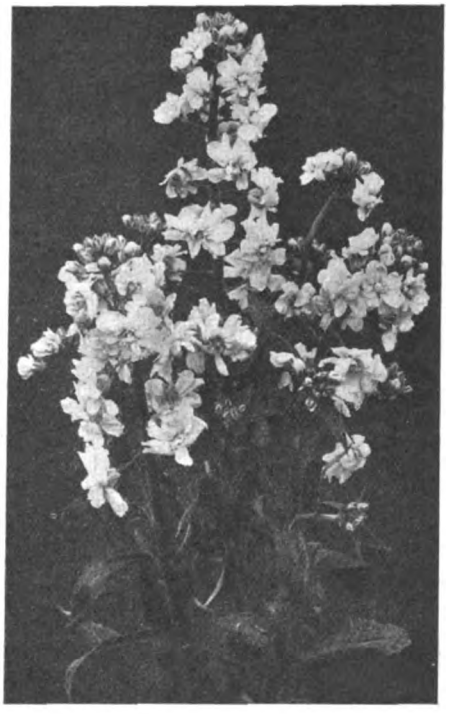
ALTHOUGH the potato tree, S. crispum, is more or less hardy it will not succeed so well in many counties as it does on the borders of Gloucestershire and Monmouthshire. In the illustration will be seen a plant covered with hundreds of flowers, a holly tree which had recently died making an excellent support for the shrub. Two years ago it was a small piece in a 3in. pot, and now it is about 14ft. high, and some 8ft. across, which proves how rapid is its growth when placed in a congenial position. The soil is rather poor, and the situation fairly open. It is readily increased from cuttings inserted in August, and from a healthy plant there is usually to be found a number of rooted pieces at or near the base. S. crispum is a native of Chili, from whence it was introduced about 1810. It is a beautiful plant in June and July, and those who are less fortunate in regard to climate, should give it a trial on a south wall, and prune it back in the spring; but where an old tree or building exists, it ought to be allowed to wander without let or hindrance, then it will be seen at its best, covered with thousands of its delicate bluish purple flowers, reminding one of the potato bloom in the kitchen garden or allotment.—T. W. B.



A FINE BUSH OF SOLANUM CRISPUM IN MONMOUTHSHIRE.

DOUBLE WHITE ROCKETS.

I SO seldom see the old double white rocket, Hesperis matronalis, now that one wonders whether there is not a danger of it being lost. It used to be a great favourite with Scotch florists forty or fifty years ago, who grew it to a degree of perfection not met with in the south. Though hardy, it is a plant which has its peculiarities and limitations, and this may, in a measure, explain why some



THE OLD-FASHIONED DOUBLE ROCKET.

have lost it. For instance, while many of our hardy plants do best when left to themselves for several years undisturbed, Hesperis matronalis depends for its existence and perpetuation on its being planted in fresh quarters every other year. It is advisable, too, not to rely solely on this method, but to work up a stock of young plants by propagating cuttings. Rockets like a rich soil in which good stable manure has been worked, but even in this they appear to be impatient, and if left too long before being removed to a new site often canker and die off. Though perennials, they can scarcely be placed in the same category as others from the fact that they cannot abide long in one place. This, I submit, is one of the reasons why this highly perfumed garden blossom is so rarely met with to-day. The old white rocket is a comparatively dwarf plant, bearing spikes of compact flowers and superior to the single annual forms.—LINDERS LEA.

HINTS FOR PRESERVING TOMATOES AND GRAPES.

AS soon as September comes the gardener has to be on the look-out for early frosts, when tomatoes are doomed. If he would ensure the development and ripening of all formed fruit, he should in August pick every tomato as soon as it shows signs of ripening. This will enable those left to swell more quickly. The gathered tomatoes should be wiped dry and stored in a tin. They must be looked over every other day. Tomatoes stored in this way ripen more quickly and surely than if placed in the sun or on a shelf. The box should be kept shut. This excellent recipe for preserving tomatoes for months was given to me by a Frenchwoman. She declared that they would keep if so treated from one season to another, but *that* I cannot vouch for! Perfectly healthy, well ripened tomatoes should be selected and placed in a glass or earthenware receptacle. They are then covered with a preservative consisting of eight parts of water, one part of vinegar and one part of

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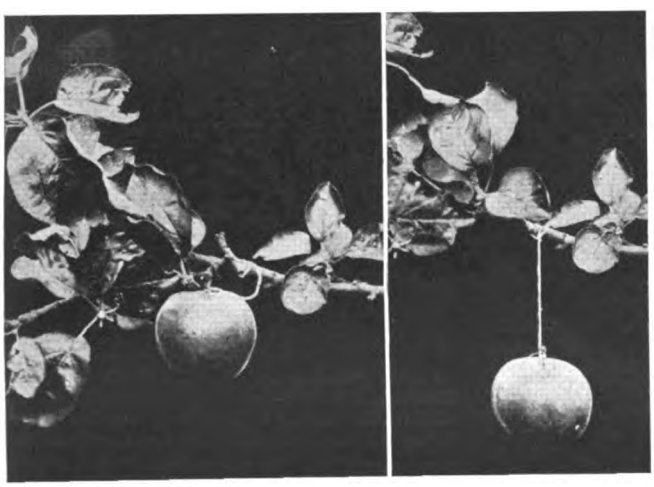
salt, which is covered with a thin layer of olive oil. An air-tight lid should cover the receptacle.

A Simple Method of Preserving Grapes.—I have kept dessert grapes throughout the winter by following this simple method: Select the finest bunches of perfectly ripe sound grapes. If there is one bruised or diseased grape, the whole bunch will perish. Fill wine bottles with water to which a little charcoal has been added. Cut the bunch off the vine *with a knife* (secateurs crush the stem and so ruin the bunch), leaving about 2ins. of stem above and below the bunch. Place one stem end into the bottle as far as it will go. The bottles should be kept in a dry, dark cupboard or, better still, a dry windowless wine cellar, and should be constantly looked over and a little fresh water added, as the stem in the bottle must *never* be out of water. Vine owners will appreciate having grapes at Christmas-time by following this recipe.—VICTORIA SLADE.

HOW TO PRESERVE CHOICE FRUITS.

IT is not always easy to decide the psychological moment that fruit has become quite ripe; it is much easier to pick a choice apple or pear long before it has attained the true state of ripeness that ensures long-keeping qualities. Of course, there is the orthodox method of ascertaining the moment when fruits are ripe by lifting the apple or pear gently upwards. Should the stalk remain firmly attached to the branch, it is a sign of unfitness for gathering, but a ripe fruit will part readily from the tree.



A GOOD METHOD OF PRESERVING CHOICE FRUITS.

There is a surer method of securing perfectly ripe fruit for storage, however, that anyone who has some really choice fruits can adopt, especially if exhibiting is in the grower's mind. This consists of tying one end of a short length of fine string to the stalk of the apple or pear and the other end to the branch to which the apple is attached some time before the fruit is expected to be ripe. Everyone knows that immediately the fruit becomes perfectly ripe it drops. When this happens to the apple that has been made secure to the tree the fruit is stopped in its downward course and is held suspended safely until the grower comes along to take care of it. In this way fruit can be preserved from bruises or scratches of any kind.—H. A. DAY.

THE USE OF CARBIDE CALCIUM GAS AGAINST GREEN FLY.

I HAVE found that quite the most effective way of freeing roses badly infested with green fly is by the use of carbide of calcium gas. The method of making the gas attack, which proved most successful, was on the following lines: A few small lumps of the carbide were enclosed in a number of little muslin bags. When rain seemed likely two or three bags were tied to each of the affected rose bushes. As soon as the bags became damp the generation of the carbide gas commenced, and this proved deadly to the aphides, which literally strewed the ground beneath in their thousands. The gas makes an unpleasant odour for a little while, but this soon passes away. In dry weather, when rain was out of the question, the muslin bags might be sprinkled with a little water to bring about the generation of the gas.—BOURNEMOUTH.

IRIDESCENT MOSSES.

EXCEPT to get rid of them as quickly as possible, gardeners, generally speaking, pay little attention to mosses. Those who wish to introduce a novel and extremely beautiful feature into the rock garden should certainly consider the iridescent mosses (Schistostega). These mosses are extremely small and, indeed, would hardly be noticed were it not for the wonderful gleams of iridescent colour which they exhibit when growing with vigour. The stones and patches of soil on which these mosses thrive appear to be sown with gold dust and a mixture of those indescribable hues found on the wings of many humming birds. Originally the iridescent mosses were thought to require a special kind of rock on which to grow, but it has now been proved that they will make themselves at home on sods of turf and masses of peat as well as on actual stone. All the schistostega do best in somewhat deep recesses away from strong light and exposure to actual rain. At all times the tiny plants must have a sufficient amount of moisture, as they are impatient of real dryness.

Some of the schistostegas are luminous at night; one which abounds in the caves of Central Europe known as S. osmundacea being remarkably so. For long it was thought that the glow was phosphorescent, but it is now known that the light arises from special spherical cells at the ends of the delicate branching threads which represent an early stage in the development of the moss plant. Each of these tiny globes, containing a few grains of chlorophyll, acts like the lenses of a cat's eye refracting the scanty light of the cavern where it strikes the globes and producing a bright disc on each as the result. By this means the light is concentrated on those positions where the chlorophyll is situated and, in spite of the dim illumination, the granules are able to discharge their special offices in an entirely efficient manner.—S. L. B.

OLD TIME USES FOR ROSE PETALS.

OUR grandmothers were in the habit of converting rose petals into all kinds of delightful fancies. How many people to-day think of making rose syrup?—and yet this forms a most delectable drink. A quantity of rose petals are collected and then chopped up and put on one side to dry. These are placed in a jar and covered with water, the whole being stood in a pan with more water in it. The petals are simmered until they are tender, and white sugar is added. The cooking process is continued until a syrup is formed. This is bright pink in colour, and a little, mixed either with hot or cold water, forms a delicious cordial.

Rose sugar was also a valued confection years ago. Here a jar was filled with alternate layers of white sugar and rose petals. The top of the jar was covered with paper well tied down. After a few weeks the sugar was separated from the rose petals, and this was found to be pleasantly flavoured with the fragrance of fresh roses. Often the sugar was served with whipped cream or spread on bread and butter.

Who thinks of making rose sandwiches nowadays? Here is the way to set about the business. Get some unsalted butter and cover this with rose petals for twenty-four hours. If the petals can be changed once, so much the better. A little while before cutting the sandwiches, bury the bread also in petals. Both the bread and the butter acquire a delicacy of flavour which cannot be described in mere words.

At one time rose beads, made as follows were much in favour. A large quantity of petals was closely chopped up and stewed in a pan until soft. The pulp was then pressed into a round shape, the hole in the centre of the bead being bored with a pin. When dry the beads were hard and black and, better still, delightfully perfumed. A few added to an ordinary string of beads gave an additional charm to the necklet.

Rose perfume, infinitely more powerful than any modern scents, was extracted by a simple home method. Into a jar half filled with the purest olive oil fresh petals were pressed. Every few days the oil was strained away from the petals and a new lot of petals added. In the end the oil was so highly scented that one drop was sufficient to perfume a handkerchief.—L. B.

SAXIFRAGA GUTHRIEANA.

SAXIFRAGA GUTHRIEANA shares the fate of so many forms of the type of S. umbrosa, the London pride, which do not appeal so strongly to the amateur grower of saxifrages as the true plants of the Aizoon or Kabschia sections of the genus. It is not a pure form of S. umbrosa, but is said to be the result of a cross between S. Andrewsii and S. Aizoon, the former itself being understood to be the result of a cross between S. umbrosa and S. Aizoon. It is, therefore, as we may expect, more nearly approaching S. Aizoon than the casual observer would imagine, and is, truly, a good saxifrage which may well find its way into the rock garden, although not commonly stocked by the nursery trade. In the ordinary conditions of the rock garden it is neater and smaller than S. Andrewsii, which is much more common; but, if given rich soil, it becomes much coarser and more nearly approaches in appearance this one of its parents. It is quite pretty when not too strongly grown, with its pink flowers and neat leaves. It is, however, a plant which derives its main interest from its having yielded a notable variety with variegated leaves. This must not be confounded with the variegated form of S. umbrosa, which is not so prettily variegated, is coarser, and not so constant in its variegation. S. Guthrieana variegata has its leaves most beautifully striped with various colours—white, yellow and pink showing distinctly on the green ground. But, unfortunately, there is a "fly in the ointment," and this takes the form of slow growth and instability in our gardens. Some ascribe this to wet seasons, but close observation has led me to form the opinion that birds are mainly responsible. They appear to have a penchant for tearing up the rosettes and carrying them off. The true place for S. G. variegata is, probably, the alpine house, and there it thrives well and increases reasonably if properly attended to. Increase of both forms is effected by division.—S. ARNOTT.

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GLADIOLI AT WESTMINSTER

A BRILLIANT DISPLAY OF COLOUR AND BLOOM REPRESENTATIVE OF THE SEASON OF THE YEAR.

NOWHERE is the evidence more clearly seen of the passage of the seasons than in the garden. The inmates visibly change from day to day and as month follows month, so also do the different genera and species follow close on each other's heels. This was clearly shown in a rather striking fashion on the occasion of the fortnightly meeting of the Royal Horticultural Society on August 11th last. Quite the most brilliant display of the year was to be seen on entering the hall. The majority of the colours were of a bright nature, yet the varying tones blended exceedingly well. From the exhibits one would have concluded it to be a special gladiolus show, for certainly these flowers took pride of place. Nevertheless, another fortnight remains before they are earmarked as the special feature. On this occasion peaches, nectarines and apricots, listed as specialities, were conspicuous by their absence. Altogether, the collections staged were most representative of the season and the high quality of all the blooms is to be commended.

The gladiolus is, without doubt, one of the few flowers which has, in the past few years, gained a large measure of popularity and has found favour in thousands of gardens throughout the country. Its rise to fame has been almost sensational, and its extended popularity is fully merited. Probably no other flower possesses such a brilliancy and variety of colour, combined with elegance and gracefulness. More important, however, is its use in the garden, and here it is also equally good. It responds magnificently to good treatment, while it will flower well in practically all garden soils and provide a brilliant and lasting display in the border which will be rarely surpassed. Again, from the point of view of house decoration, the gladiolus is pre-eminent. When cut and placed in vases the spikes of the primulinus hybrids especially last for a long period in full bloom and in excellent condition. Their beauty, when the flowers are placed in a suitable setting, cannot fail to be appreciated

Messrs. Kelways again staged a very fine collection of their Langprim hybrids and large-flowered gladioli. The blooms of the individual varieties looked well in the vases, the size and form of the flowers being easily appreciated. Among the many excellent sorts we noted James W. Kelway, Pinkie, Langport Scarlet, Sea Mouse and Blue Jay.

Another magnificent collection, admirably set off by asparagus, was that put up by Messrs. Sutton and Sons. The varieties were massed together and although the resulting colour effect was good, yet the characteristics of the flowers were not clearly seen. Among the many excellent sorts were L'Immaculée, Fiery Knight, Princeps (an old variety), Baron Hulot and Duchess of York.

Messrs. R. H. Bath and Mr. Geo. G. Whitelegg, also contributed to the general array by their very fine collections, including many noted varieties. The colour of the blooms on both stands was good and showed the results of careful treatment during the growing period. Major Geo. Churcher also staged a number of interesting primulinus hybrids, while Mr. Alfred Edwards showed several sorts, such as Souvenir, Scarlet King, Psyche and Dorothy, and Messrs. Lowe and Gibson such varieties as Laetitia, Niobe and Maiden's Blush.

These excellent exhibits should do much to increase and extend the cultivation of this fine hardy border plant.

Roses were again represented by stands arranged by Messrs. Pemberton, Messrs. Chaplin Bros., and Messrs. Dickson. All the leading varieties were shown and appeared in fine condition.

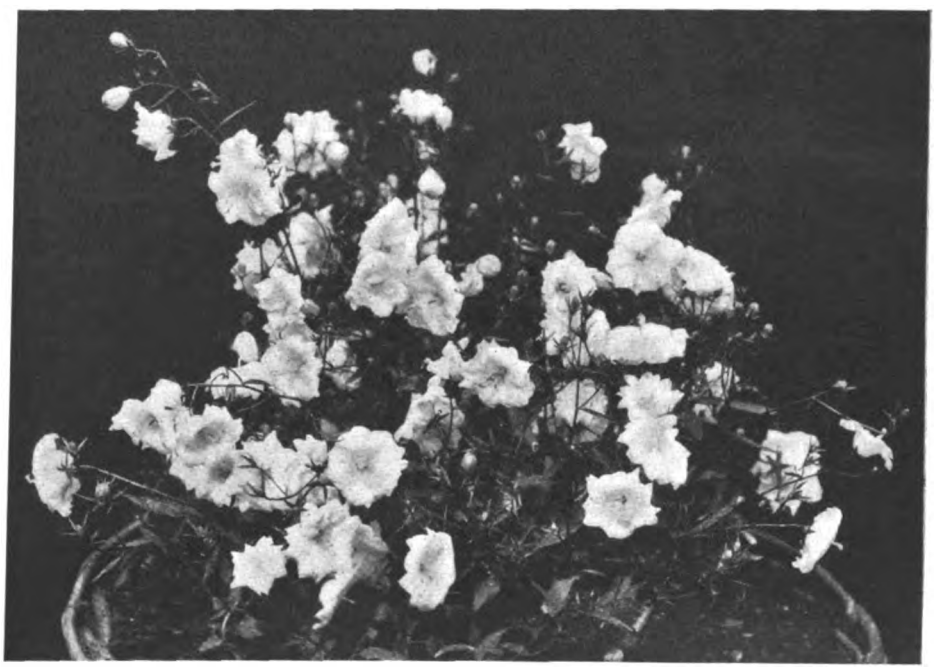
Mr. H. J. Jones once more excelled with his collection of phloxes, all in full bloom, and laid out in an oval, while Mr. Edwin Beckett, also staged a magnificent group, equally well grown.

A very fine collection of tomatoes in pots was staged by Messrs. Dobbie of Edinburgh. The plants all appeared in excellent health and carried heavy crops of fair sized fruit. Both the yellow and the red fruiting varieties were shown.

Herbaceous flowers, fruit, carnations and greenhouse plants completed the number of exhibits, and all contributed to the success of the show.

The alpines were few, but very interesting. Messrs. Reuthe showed a collection of minute, slow-growing shrubs—not the showiest nor the easiest of rock plants but beautiful, with the peculiar distinction of flowering plants which have adapted themselves to wind and storm. Myrtus nummularioides, a tiny, creeping myrtle from Patagonia, with leaves like a thyme, but typical flesh-coloured flowers and pink, waxy berries; Gaultheria antipoda var. adpressa and G. pyrolipha var. cuneata, wiry little shrubs a few inches high from the Alps of New Zealand; Dracocephalum Isabellæ, with stiff, rosemary-scented leaves and ample heads of powdered violet flowers; Pyrola rotundifolia, a rare native woodlander, whose waxy white flowers suggest a lily of the valley and are sweetly scented like Cyclamen europæum; Geranium cinereum album, a remarkably fine albino, not a washed out version of the type, but delicately veined with dark red; and Allium macranthum, a new garlic from China, with a loose head of drooping, reddish purple flowers suggesting pear drops—a handsome plant.

Messrs. Prichard showed a new saxifrage of their own raising, a cross between S. primuloides and S. Aizoon, conveniently named "S. Primulaize." From neat, leathery rosettes of London Pride it throws up a shower of starry deep magenta flowers on red stems. The interesting and striking colour should look well against a pale background. Gentiana septemfida is one of the best of the cluster-headed gentians, especially for the sharp contrast between the pale blue and inky black panels on the outside of the corolla. Of this a very fine seedling variety was shown, carrying its flower heads quite upright instead of flopping rather weakly like the type and with much larger flowers of a deeper, fuller blue. Leucophyta Brownii, an old bedding-out plant from Australia, that looks as though it were made of stiff white string, knotted here and there into flower buds, was also there in association with Convolvulus Mauretanicus, whose deep, lavender-blue trumpets have a rare luminous quality; it needs and is well worth the warmest and sunniest place in the garden. The former should make an interesting addition to the rock garden.



THE CHARMING CAMPANULA WARLEY ALBA, OF RATHER SPREADING HABIT.

Other exhibitors were as follows:

Messrs. Stark and Son, Fakenham, mixed herbaceous flowers; Messrs. Allwoods, carnations; Mr. C. Engelmann, carnations; Messrs. L. R. Russell, greenhouse plants; Messrs. Amos Perry, water lilies and herbaceous flowers; Messrs. K. and E. Hopkins, herbaceous flowers; Messrs. Stuart Low, carnations, greenhouse plants and figs in pots; Mr. Thomas Carlile, delphiniums; Messrs. Isaac House and Son, Scabiosa caucasica hybrids; Messrs. Cheals, dahlias; Messrs. Bunyard and Co., well fruited specimens of fruit trees in pots; Messrs. Laxton Bros., apples and the Veitchberry.

NEW AND RARE PLANTS.

AWARDS OF MERIT.

GILIA CALIFORNICA.—This Californian representative of an interesting genus is a rather low, much branched shrub, carrying

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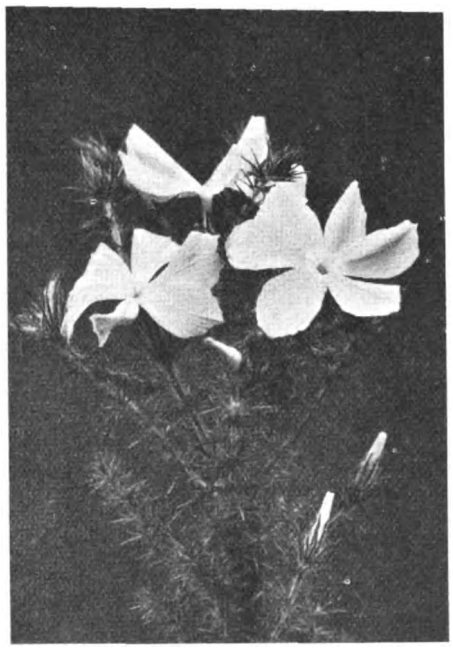
showy, rose coloured flowers. The plants shown were grown from seed sent from California and are, we understand, the only ones in this country. It is not hardy and requires the shelter of a cool house. The height reached is about one foot and the alternate leaves are deeply divided into numerous short segments and densely cover the stem. The flowers are about 1¼ins. across and are carried at the ends of the stems. Shown by Mr. T. Hay, London.

PHLOX MRS. H. B. MAY.—The plants are about 2ft. high and carry numerous trusses of medium-sized flowers of a clear pink colour, extending to the eye. The foliage is also good and sets off the flowers to advantage. It should prove a useful variety for massed colour effects in the border. Shown by Mr. H. J. Jones, Ryecroft Nurseries, Lewisham.

LILIUM BAKERIANUM.—The flowering stems of this species are almost 2ft. or so in height and carry a single, drooping, elegant flower, with petals of about 3ins. long and reflexed, and 3ins. across. The interior of the corolla is heavily speckled with maroon, while the base has the characteristic green of almost all lily flowers. The leaves are fairly long and narrow. It is an interesting species. Shown by Messrs. R. W. Wallace and Co., Tunbridge Wells.

SIDALCEA HIAWATHA.—A new variety which looks well in a clump, as it was exhibited. It reaches a height of 2½ft. to 3ft., and is very floriferous. The flowers, characteristic of the family, are about ¾in. across and of a rosy-mauve colour, with a white centre, out of which arises the stout staminal column. Shown by Messrs. Stark and Son, Fakenham.

SPHÆRALCEA FENDLERI (HASCOMBE'S VAR.). —Sprays of this shrubby globe mallow, adapted for the greenhouse, were shown



THE RARE GILIA CALIFORNICA.

carrying numerous rather small orange-coloured flowers. They are built up on the usual plan of the family. The foliage is of a dull green and forms a pleasant background to the flowers. Shown by Mr. Chas. J. Musgrave, Hascombe Place, Godalming.

CAMPANULA WARLEY ALBA. — This is a fairly old variety, which was originally raised at Warley Place. It is a charming little plant of a rather spreading and procumbent habit, carrying numerous pure white semi-double campanulate flowers, about ¾in. across. The foliage is also rather ornamental and shows the heterophylly so often found in many species of this genus. It should prove ideal for corners in the rockery or as an edging. Shown by Messrs. M. Prichard and Sons.

RHODODENDRON SEROTINUM.—This species from western China is a member of the Fortunei series, which embraces the majority of our late-flowering rhododendrons. The flowers of this species are of much the same general shape and form as R. auriculatum, but on a smaller scale. They are fairly large and more or less flatly bell-shaped, and six to seven occur in a truss. The flowers have a slight fragrance. The leaves are shorter and more rounded at the tips than is the case with R. auriculatum. Shown by the Director, Royal Botanic Gardens, Kew.

ORCHIDS.

BRASSO-CATTLEYA CORRIENTES (B.-c. Ilene × C. Hardyana).—This elegant hybrid was raised in the collection of Dr. M. Lacroze, "Bryndir," Roehampton Lane, Putney, with whom it first flowered last year. The present example bore a very large flower, having the petals arranged in upstanding habit, while the broadly developed labellum had the margin crisped and fringed. Sepals and petals of uniform rosy-mauve colour, the labellum much darker on the marginal zone, a bright yellow area on each of the side lobes formed conspicuous features. This is a promising hybrid, and when fully matured will doubtless gain a higher award. Award of merit. Shown by Dr. Lacroze (orchid grower, Mr. A. Taylor).

CORRESPONDENCE

HYDRANGEA SCANDENS.

SIR,—Some months ago I saw a letter from Sir Herbert Maxwell recommending this to be grown against a house. For some years I tried it on a tree, but moved it, as it was not doing well, to my house, where it has done splendidly and is over 20ft. high and continues to spread.—H. G. HAWKER, *Devon.*

ALUM FOR SLUGS.

SIR,—In following Mr. A. D. Richardson's instructions for using alum against slugs (THE GARDEN, July 4th), we have discovered its use in another direction. A young standard damson having gone off with "the yellows" in mysterious fashion, my gardener, having some of the solution of alum left over, watered the ground round the stem with it. To his surprise a number of wire worms, some twenty to thirty, quickly made their way to the surface and were captured and destroyed. He described them as looking rather "faint like" on emerging from the ground. I wonder if the alum will destroy leather jacket grubs equally well! We find it is they, and not slugs, that eat off the endive, and they can be secured with the finger, just below the soil. Anyhow, my sincere thanks to Mr. Richardson.—ALICE MARTINEAU.

AN INVITATION.

SIR,—In the cause of Anglo-American friendship, I think it may interest your readers to know what a very real part in it garden-lovers may play.

For the past three years, through the kindness of many friends of the English-Speaking Union, the Garden Committee has been able to arrange for visitors who belong to the Garden Club of America (a large organisation which has done much to promote a wide love of horticulture) to see a number of private gardens, both large and small, in England. These visits have given so much delight that the Garden Club of America wishes now to return the compliment, and they would like to give the English garden-lovers visiting their country specially arranged facilities for seeing some of the beautiful gardens in the United States.

Interesting and lovely gardens in the Eastern States, such as those on Long Island, along the Hudson River, in Westchester, Connecticut, New Jersey and Philadelphia, will be shown, and a letter of introduction from our Committee will ensure that convenient arrangements will be kindly made for the English visitors. Applications for such letters of introduction should be made to me. — ISABEL MARGESSON, *Chairman of the Garden Committee of the English-Speaking Union, Charing Cross, S.W.1.*

IRIS TINGITANA.

SIR,—*Re* B. K. G. and Iris Tingitana in THE GARDEN of February 21st, I have had two clumps of this iris, with about fifty bulbs in each, growing in the open—one in full sun and one in partial shade, for the past nine years. With the advantage over England of ten degrees of latitude, and a mean temperature last year of 57deg. Fahr., the plants make great growth and increase rapidly at the bulb. They flower here in July-August. In 1921 there was one bloom, in 1922 there was one, in 1923 none, and in 1924 two; this year I see no signs of any. Two miles away, under similar conditions, they flower profusely, and some fifty bulbs, given away when dividing the roots two years ago, produced in Blenheim, about twenty miles away, over forty blooms last winter.

Calthrop, in "The Charm of Gardens," says it is a question of "whom the flowers love." Dr. Lloyd Praeger, in THE GARDEN of January 10th, says, more with regard to growing than blooming, "if they won't, they won't." In my humble opinion it is unadulterated cussedness. — A. R., *Queen Charlotte Sound, New Zealand.*

THE YELLOW SWEET PEA.

SIR,—Your correspondent's letter referring to the search for the elusive yellow sweet pea fails to record, to my mind, a most important fact. That is, there is no one flower yet known which gives us the three primary colours—blue, yellow and red—and I often wonder if we are up against the proverbial brick wall in attempting to produce these colours in one flower and so, I might add, thwart nature. My knowledge of flowers is somewhat limited, I must admit, but perhaps your readers can inform me of a flowering plant giving us the three *true* colours (if there be one). At the moment a perfect red and a blue hyacinth occurs to me, but we have, as yet, no true yellow (the buttercup yellow). We have red and yellow roses, but where are the blue ones? It somehow would seem uncanny to have a blue rose! Poppies are gorgeous in their yellows and reds. I have yet to see a blue one. Other instances will occur to the reader. I agree with Ed. Cahen in his article, "Blue in the Garden," when he says that "the blue sweet pea has yet to appear," but we are nearer to that than the yellow sweet pea, which I venture to state will never be found.—CEDRIC C. UNDERHILL.

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WEEDS—GARDEN TRAMPS

MAN plants a garden saying, "Here I will have grass, here flowers, there rose trees, yonder apples, in the shadow of the plums the raspberries will grow, on that barren piece of land Jerusalem artichokes, on this sunny wall a nectarine will blossom even if it has no fruit, these stones shall make a warm, well drained pocket where a gentian shall tell me what blueness is, and here and there shall be lines of desert called paths." Thus the gardener orders, and in his mind he sees the plants obedient to his will; in this patch man becomes a great lord, but he is not as great as he would wish to be, for he cannot command when the sun is to shine or the clouds to drop rain. Such things, however, belong to a far away dominion, so man does not fret at the rival lordship. But unfortunately for his complete peace of mind, there are some plants here on earth who do not bow in obedience to his will. These are the tramps who enter into his demesne by his gate, even on his own feet, blow over his hedges, are carried by birds and grow into what he is pleased to call weeds.

Man orders, "Here I will plant grass seed and after a few years I shall have a fine lawn, green all the year, soft all the year, reminding me of spring in the midst of winter and of coolness in the heat of summer. Here are to be no reds and blues and yellows, but green alone, that universal expression of life." But if grass grows on a path or springs up between the peas or beetroots, the gardener seizes the little plants in wrath and annoyance, saying, "You are a weed, you must die."

Ask a friend what a weed is and the answer may be, "Well, of course, dandelion, chickweed, squitch-grass, groundsel. Dash it, everybody knows what a weed is." But what at the end of April or the beginning of May is more beautiful than a bank starred—or is it sunned?—by dandelions? Before we adopted the French name (*dent de lion*, lion's tooth) did the Anglo-Saxons call it sunflower, for that should be its name in England. Sometimes a careless farmer allows a whole meadow to be overtaken by dandelions; then when the sun shines what a sight it is, rich, glowing, calling aloud for joy and gaiety. If that bad farmer continues in his lazy ways, that field may turn into a soft grey mist of dandelion clocks whose winged seeds rise up on little puffs of wind and, floating softly and gently in the air of June, may find a temporary home upon your sleeve or in your hair.

What are weeds, indeed, but just plants that domineering man says may not grow in *special* places in his garden. Notice, he does not always forbid them his garden, but forbids them freedom to choose where they would grow.

A man once left his garden for a year. When he returned he found great tussocks of squitch-grass growing among his strawberries and wisps of squitch had even crept up the damp darkness of his box hedge and were growing out at the top. Where potatoes had been planted the year before there was the finest bed of Shirley poppies he had ever seen, foxgloves were pushing their hairy stalks up among his black currants, one winding path was a solid mass of forget-me-nots. The path wandered like a blue river between beds where sow thistles and lupins were in competition and where the long fingers of the grass were pushing at the leaves of polyanthus and flowering pyrethrum. The tiny spaces between his flagstones were gay with baby lupin plants. So the man started to fight the weeds, forget-me-nots, Shirley poppies, foxgloves, lupins. Man had ordered that the paths should be brown and plantless, so with a tiny regret he rooted up the blue flowers on the paths, but he watered with care those that were growing in the particular beds to which he had allotted them.

If only plants could read, the gardener would save much time by putting up a little notice, "Plants are requested to keep off the paths." Then the man transplanted some of the foxgloves to shady places where they would willingly grow, but many he had to root up and throw away. Some of the baby lupins he put in a nursery bed, but most of them died from poisoning by a weed-killer.

There are people who announce that there is not a single weed in their gardens—they are efficient but too hard. All gardens are filled with slaves and prisoners, well fed, well cared for, fat and flourishing, but still prisoners, they may eat, they may drink, they may marry and have children, but the gardener lord commands, "Here you must dwell! Your home may be on the mountains, but I choose that you live here in the valley. You have come from a warm, moist climate, but I insist that you stay here where it is temperate and dry. I will be very kind to you, but do not forget you are my slave." Plants, earth's supreme philosophers, make the best of their chances and out of their slavery make gaiety for their masters.

Now, the weed is a free lance, a tramp who says "Think I'll stay here," and unless the gardener turns him out, not once, but perhaps many times, he does stay. The really human garden should have a few weeds, a few individuals who have chosen to live in the garden, who honour a particular man by their presence. If only the gardener can soften his heart a little he may find pleasure in these weeds. Weeks before any slave plant has shown its blue or yellow, a little plant of purple nettle may hold up its square stalk with bunches of purple blossom good in shape and colour; then in a sheltered corner under a hedge a single dandelion may laugh at you from out its golden face just when all your friends are grousing about the lateness of the spring. The tough deep root of the dandelion has been quietly storing up energy for this early spring display. Gardener, do not cut off his brave head, or at least wait until he is too tired to laugh any more, but greet as a friend this little English sunflower whose ancestor must surely have been the sun in the sky.

Early, too, are the tiny white flowers of the chickweed, delicate flowers growing among delicate leaves. Allow just one plant to grow somewhere.

The groundsel is such a plucky weed that it compels admiration. It knows so well its end is to produce seed, it is so filled with the passion for posterity! If it cannot grow tall and blossom, it is content to grow an inch or two and produce a bushy little plant with a couple of flowers. If it is uprooted, it does not immediately lie down and die like chickweed, but twists one or two roots downwards into the earth, turns its growing point upwards to the light, and in the twinkling of an eye the buds have blossomed into flowers and the flowers have become seeds ready to fly away on their mission.

It is just this sense of choice, of freedom, that makes a plant that has seeded itself so much more delightful than one which has been ordered into a definite place, has been what the gardener calls planted. These plants are willing guests, and can be met as man to man not as master to slave. The lupin that seeded itself at the foot of the morello cherry need not be regarded as an interloper to be torn up, but as a guest to be encouraged. The Shirley poppy that decided to grow on a potato ridge had leaves 10ins. long and grew into a fine big plant which continued to blossom for a long time, for it was content in the place it had chosen for itself.

A tramp called greater celandine made a camp in a corner behind some globe artichokes. The gardener left it because the leaves were such a beautiful shape that he didn't think it could be a weed. But by the time he did learn its lowly origin he had grown to like the plant in the corner, and year after year allowed its children to keep their place, checking them a little, as it was not a plant that wanted to spread unduly. The gardener finally took a pride in the plant with the curiously cut leaves whose edges turn up like a saucer and which bears transient yellow flowers with lovely crumpled leaves. If by chance a leaf was broken, it instantaneously produced a bright orange juice and thus held out the hope of a speedy cure in case of jaundice. Here was a weed pleasant to look at, modest in behaviour and ready to help in time of need.

There are two weeds, squitch-grass and stinging nettle, which seem to have no virtues and of which not a single plant can be encouraged, but these plants are not merely irresponsible, happy-go-lucky tramps, but belong to the defiant criminal class, and yet, on still further thought, tussocks of squitch-grass make excellent places for robins' nests and on the leaves of the nettle live the masses of velvety black squirming caterpillars which produce those wonderful peacock butterflies.

"Now is the time to keep the hoe going," says the garden manual, but if you would have some friends in your garden, do not keep it going too well. O. A. MERRITT HAWKE.

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SIMPLE GARDENING

LAWNS IN AUTUMN.

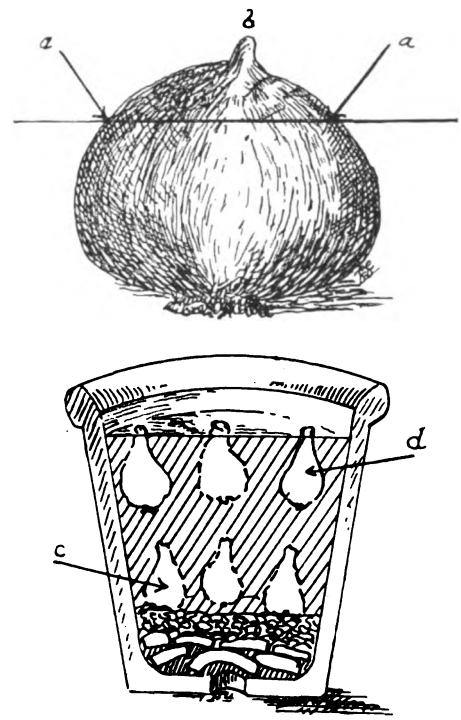
NO doubt many small lawns were badly worn during the recent spell of hot weather. When constantly used such lawns must suffer more or less according to the character of the turf itself and the under layer of soil. In the case of a sandy soil, the surface gives way, is "kicked up" if games are played on it; where stiff soils obtain the surface becomes very hard and grasses die off above soil level but are sound enough below it. A lawn of this kind, when rainy weather comes, soon improves and the new grass is of a finer quality, thus making a very neat lawn during the autumn and early winter months. After a wet summer these lawns often produce coarse grasses. The sandy lawn requires much more care after a hot spell of weather. There is always a little unevenness of surface to make good, and this is best accomplished by mixing some good loam (two-thirds) and leaf-soil (one-third) together after passing both kinds through a three-quarter inch mesh sieve. About two bushels per square rod should be applied, then 1 oz. of bonemeal per square yard. Scatter the ingredients evenly; roll if the weather be dry, then water once through a fine-rosed watering-can. In this simple way a town or suburban lawn, having done good service during the summer, will be quite fresh-looking by mid-September and look well throughout the winter without any applications of unsightly-looking organic manures. Where there is a strong-growing grass, it is good policy to continue the use of the mowing machine well into the autumn. If not frequently cut the grass gets coarser.

THE SPRING DISPLAY OF ANNUALS.

During the month of August and the first half of September seeds of many kinds of annuals may be sown to provide a very early display of flowers in pots in the greenhouse and also in the open border. At the time referred to there are not many flowers in a garden except those of bulbs. The first seeds to sow are those of Silene pendula compacta. It is not necessary to sow in boxes, though this may be done if more convenient. I prefer a fine open border where the seeds may be sown broadcast very thinly. In due course the resultant seedlings should be transplanted in their flowering quarters. This plant is excellent for filling small borders and for edgings and carpet plants. Seeds of Shirley poppies should be sown in the border where the resultant plants are to flower. The seeds are small, so do not be tempted to sow them very thickly. Cover them lightly with fine soil and be sure that the soil is kept free from weeds. Before the young plants get weakened by overcrowding, thin them to 4ins. apart; the result should be a wealth of blossom in due course. Sow the seeds in two batches in August and mid-September. At the latter date sow Clarkia elegans and Marigold Orange King. The young plants are to be flowered in pots; those of the former thinned out but not transplanted, those of the latter may be. The clarkia and mignonette seeds are best sown in good compost in 3in. pots, and, as suggested, the resultant seedlings should be thinned out and the others re-potted into 6in. pots early in October, three plants to a pot being enough. Throughout the winter a shelf in a greenhouse will be an ideal position for the plants.

POTTING THE EARLY BULBS.

The early bulbs will soon be available in great quantity. We generally look forward to the earliest flowers as we do to flowers in the border and apple blossom in the orchard in the spring. The bulbs vary considerably in size; the largest are not always the best; a good bulb must be firm and contain a well formed embryo spike of flowers.



Narcissi, tulips and Roman or French hyacinths are the first bulbs to claim attention, and for these the same kind of compost will answer. Extra fine flowers may be grown without the aid of manures; if any be used it should be well rotted and placed in the bottom of the pot. Manure water will be helpful when the flower stems appear, but artificial manures should not be used in the soil. Rotted fibrous turf, leaf-soil and sand form an ideal potting compost. Pots that have been in use before, but washed and dried, are the best for growing bulbs in. Tulips and hyacinths should be potted as shown in the sketch, the soil level being at *a*, *a*, the crown of the plant *b*, being just clear. Where it is desirable to grow as many flowers as possible in a small pot and the bulbs are large, several may be placed as shown at *c*, and others as shown at *d*; all will flower at the same time. Water the newly potted bulbs before plunging the pots in sand or leaf-soil.

FEEDING PLANTS.

As the autumn comes the weather is colder, especially at night, and the root action of plants is, to a great extent, arrested. But the pots of many plants are filled with roots and there is not any nutriment remaining in the soil to maintain the normal health of the plants, and a judicious application of some reliable stimulant will prove beneficial. The most reliable stimulants are those of a cool nature. We have now to deal with such kinds of plants as zonal pelargoniums, salvias, chrysanthemums, bouvardias, carnations and berried solanums, also the earliest batches of cinerarias and primulas. There are other kinds, namely, azaleas, rhododendrons, genistas, etc., that have filled their pots with roots. We call such plants hard-wooded, and their roots are fine and fibrous. The autumn is not the time to apply manures of any kind, although the pots are well filled with roots. If we feed them now the result would be, probably, bud-dropping in the spring directly the plants are subjected to a little forcing heat. No, clear water only must be applied, leaving the feeding of the plants to next year after they have flowered and are making new growth, and here again the feeding should be confined to such plants as are not being re-potted. The application of stimulants to others should be given before the plants are placed under glass and again after they have been at least one week under it. It is wise to apply weaker doses now than before housing, and cease to give any when the blooms are half developed.

GARDEN RUBBISH: HOW TO DISPOSE OF IT.

It does not matter how small the garden is, some rubbish will be found at this season of the year. In the country there need not be any difficulty in disposing of it, as its treatment can be carried out at some distance from the dwelling-house, but in a small town or suburban garden it is quite a different matter. Select a place private and as far away from any dwelling-house as is convenient, dig a hole in the ground large enough to contain at least two-thirds of the refuse below the surface. As the refuse—leaves, stalks, grass, weeds, etc.—is placed in the hole sprinkle lime on one layer and a small quantity of soil, and salt on the next layer without any soil, and so on. The one-third portion should be similarly treated but entirely covered with soil taken out to form the hole and so placed as to form a cone over the whole. There will not be any offensive smell from the heap and next spring the whole mass will be in a fit state to use as manure in the vegetable garden. Where the garden is a more extensive one and more rubbish will be collected, the whole of it may be treated in a heap above ground in a suitable place. GEORGE GARNER.

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THE GARDEN

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BULB PLANTING

THE bulb season is again with us, with the attendant spectre of winter to follow. We begin to think of spring again and so another year passes: we grow older—the "we" is not editorial, but general. It is always as well on a solemn occasion like a Bulb Number to begin with a platitude or two, it promotes a feeling of confidence.

Bulb planting is not so easy as it looks. By bulb planting I do not mean the adornment of beds when every bulb is planted in mathematical fashion, nor forcing bulbs nor bulbs planted in an odd corner of the garden for cutting purposes, but that planting where we try to ape Nature and pretend to ourselves that no human had a hand in the making of this mat of crocuses or this drift of daffodils.

At the Col de Lauteret this year I gazed upon an enormous patch of wild pheasant's eye narcissus, and came to the conclusion that most of the narcissus drifts in this country, although pleasant to look upon, were not natural. They are so planted that your attention is forced. In Nature you rarely see them in the mass formation so commonly used in this country, and when you do the result is usually more striking than beautiful. They wander about the alpine meadows in skirmishing order rather than in solid phalanxes. Many people, no doubt, admire the foliage of bulbs in general and narcissi in particular. I, personally, do not. Solid fountains of spear-shaped leaves do not interest me unless they are plentifully sprinkled with flowers, and to my mind a mass of green spears is the great drawback of solid drifts of daffodils. It is not so bad in early spring when you have the excitement of the flowering season in front of you, but once the flowers are faded and passed, the sight appears to me to be dull and dowdy.

NOTE HOW THE FLOWERS HERE DO NOT LOSE THEIR INDIVIDUALITY BY TOO CLOSE GROUPING AND PLANTING.

Of course these solid masses are often a variant of the original plan. The bulbs increase in course of time and frequently are not broken up and replanted, which is also a reason for lack of bloom. A method which does away with this close feeling of solidity is to plant your bulbs in such a way that the drift tails away. In Nature most flowers act as a column of troops on the march. You first come upon a few scouts slowly pushing their way forward into new or doubtful territory. Then comes the advance guard, the main body with their attendant flankers, the rearguard, and, finally, a few late stragglers. So it ought to be when daffodils are planted in drifts. It saves hardness of line and an abrupt beginning and end. I think it is universally recognised that the daffodil from its nature is essentially a plant for a wild garden, and so particular care should be taken about its planting. The modern daffodil is a product of the hybridiser, and so it is, perhaps, unwise to carry the parallel of a wild plant too far, but natural grouping is a real necessity. The bluebell is one of the few plants which grow wild in such profusion that they refuse to allow any other plant in their particular domain. Another method of avoiding monotony of colour and atmosphere in a drift of daffodils is to plant a proportion of another flower along with the daffodils, always allowing the daffodil the higher percentage. One of the best mixtures I have seen is daffodils and muscari, for the yellow takes away something of the hardness of the blue and the blue part of the monotony of the yellow.

It is difficult to give any detailed suggestions for planting, as each individual case has to be judged on its own merits, but perhaps I have said enough to show that drift planting cannot be rushed.

E. H. M. C.

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BULBS AND TUBERS FOR THE ROCK GARDEN

WITH A VIEW TO BRIGHTENING THE ROCK GARDEN IN THE SPRING MONTHS, BEFORE OTHER INMATES HAVE SHAKEN OFF THEIR WINTER SLEEP, A FEW OF THE UNDERMENTIONED SUBJECTS SHOULD BE TRIED.

MANY of the smaller growing bulbous plants are invaluable for the rock garden, and they can be planted any time now up to the end of October. But the sooner they are in the ground the better, as the spring display of flowers depends on the amount of root action produced before the winter commences. In association with low-growing plants, like the aubrietias, phloxes and other similar subjects, they will provide a charming display during the early spring months, while with a judicious selection of bulbs the season may be prolonged well into the summer months.

Among the earliest in flower in the spring are the chionodoxas, commonly known under the name of "Glory of the Snow." They form a small genus of two or three species, natives of the mountains of Crete and Asia Minor, where they flower in profusion amid the melting snow. They are quite hardy, and when left to themselves increase freely by means of seeds and offsets, soon forming large masses which are very effective on the banks of the rock garden. C. Luciliæ has flowers of a brilliant blue with a clear white centre, while there are also pure white and rose coloured varieties of it. C. sardensis is one of the best, with gentian blue flowers, a little later in flower than the above. Similar to C. Luciliæ and later in flower is C. Boissieri.

THE SPRING SNOWFLAKE, ONE OF THE EARLIEST AND MOST BEAUTIFUL OF SPRING FLOWERS.

Many of the crocuses may be recommended for massing in suitable positions in the rock garden and as the foliage is not coarse and also dies off early, it does not affect the display of bloom produced from the plants among which the corms are planted. Of these, C. Sieberi is a charming species from Crete, with soft lavender-blue flowers, having a bronzy yellow base. C. biflorus, the "Scotch crocus," has the outer segments feathered blue, while the inner segments are snowy white. Another good one is C. Imperati, with pale violet inner petals and fawn outer ones, more or less feathered violet to black. One of the best to naturalise is C. Tomasinianus, with pale lavender flowers. There are numerous other kinds equally suitable for this purpose and all are worth trying.

The erythroniums are beautiful low-growing woodland plants, generally with two more or less marbled or barred leaves, and slender stems bearing from one to several nodding flowers of various shades of colour. They like a cool, shady spot in the rock garden, and a loamy soil rich in leaf mould. Deep planting is advisable, for the plants cannot endure drought while in growth. The European E. Dens-canis is one of the best known, and there are many beautiful varieties, from white to rose and purple. From North America we get many handsome kinds, among which are E. americanum and E. grandiflorum, with yellow flowers; E. californicum (syn. giganteum), with delicate pale chrome yellow flowers, having orange markings in the centre; E. Hendersonii, one of the most distinct, with purple centred pale lilac flowers and E. revolutum, ranging in colour from creamy white to the bright rose coloured E. revolutum var. Johnsonii.

THE CHIONODOXAS SO APTLY NAMED "GLORY OF THE SNOW."

The golden blossoms of the winter aconite (eranthis) are very beautiful, produced among frills of emerald green foliage in early spring. The best known is E. hyemalis, so often met with growing under trees and in moist situations. E. cilicica comes from Asia Minor, with larger flowers and more finely cut foliage. A hybrid between these two species is E. Tubergeni, with larger flowers of a deep primrose yellow colour. Of the many bulbous plants that one can grow in the rock garden, there is none that appeals more strongly to the average garden lover than a patch of snowdrops, and it is certainly one of the first favourites of spring. There are numerous kinds, one of the best and most graceful being our

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native G. nivalis. G. Elwesii is a distinct and beautiful species from Asia Minor, with large, snowy white flowers, the inner segments of which are marked with green. G. Fosteri is also from the same region, with broad, glossy green leaves and white flowers. The giant Crimean snowdrop (G. plicatus) is a handsome kind, with broad foliage and large flowers. After the foliage of the snowdrops has died down the bare places may be sown with annuals.

The iris family contain many beautiful bulbous plants that may be largely used for planting in sheltered nooks in the rockery, where the flowers would get a little shelter from bad weather when in flower. One of the earliest in bloom is the Algerian scorpion iris (I. alata), a pretty winter-flowering kind with arching green leaves and lavender blue flowers. In February, also, the violet scented iris (I. reticulata) produces its violet coloured, sweetly scented flowers. There are several forms of this, one of the best being I. r. var. histrioides major, with large flowers varying from purple blue to bright blue, and white spots on the falls, and a narrow orange crest. I. orchioides has bright golden yellow flowers. These and many others are well worth growing, including the yellow I. Danfordiæ from the Cilician Taurus, and the winter-flowering I. Vartani from Palestine.

ONE OF THE DWARF TULIPS SUCH AS THE YELLOW AND WHITE T. DASYSTEMON SHOULD FIND A PLACE IN THE ROCK GARDEN.

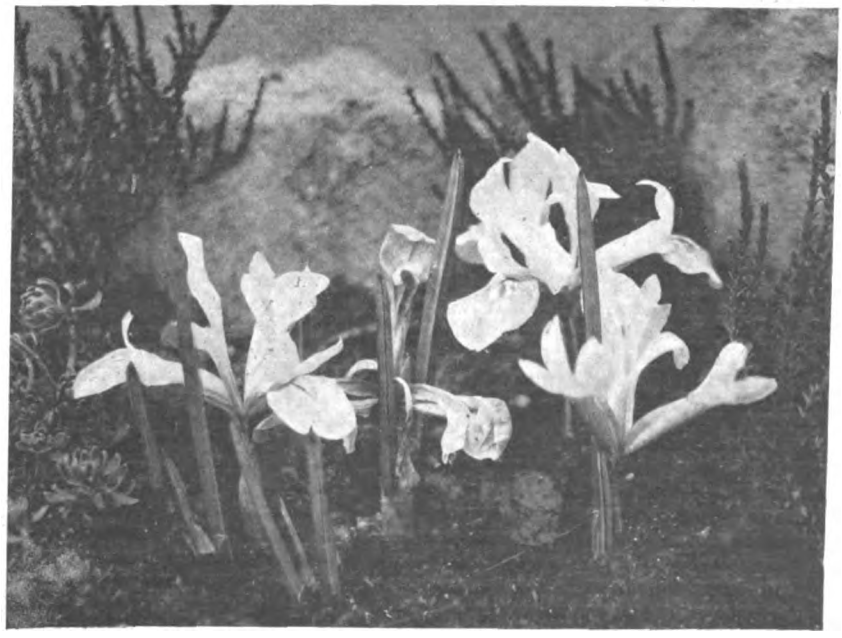
Leucojum vernum, the spring snowflake, is one of the earliest and most beautiful spring flowers, of handsome and elegant drooping habit. The flowers are large, snow white, and tipped with green or yellow. When established in suitable positions large tufts are formed which produce many flowers stems to each clump. Bulbs should be planted as soon as received, as they dislike to be kept long out of the ground. The summer snowflake (L. æstivum), is the tallest and most vigorous member of the family. It produces abundance of foliage and flower stems 2ft. in height, each bearing clusters of three or more flowers.

Many names have been applied to the various muscari species, a charming family of early spring-flowering bulbs, but they all bear close resemblance to each other. In masses nothing can exceed the effect produced by the numerous racemes of bright violet blue flowers of M. conicum (Heavenly blue). M. azureum, also known as Hyacinthus azureus, is a dainty little plant, only a few inches high, with spikes of azure blue flowers, a gem for the rock garden. M. armeniacum is one of the latest to flower, coming into bloom at the end of May. It has long, dense racemes of rich violet blue flowers.

In the daffodil family are several charming little species that are indispensible for the rock garden. N. cyclamineus is one of the earliest of all daffodils, an elegant flower of very distinct form, the trumpet being rich yellow, straight and tube-like, while the segments are reflexed as in a cyclamen. N. triandrus, "Angel's Tears," is of slender growth and produces a cluster of creamy white flowers with a globular cup and reflexed perianth. With larger, snowy white flowers is N. triandrus var. calathinus, a rare plant from Brittany. Others worth growing are the dainty little yellow-flowered N. minimus and N. minor, a little larger than the last, while the two forms of the Hoop Petticoat daffodil should not be forgotten. These are N. Bulbocodium, with rich yellow flowers, and N. B. var. citrinus, with citron yellow flowers. Of Scillas there is the early-flowering S. bifolia from the Taurus mountains, with dainty little racemes of deep blue flowers in early spring. After this comes the Siberian squill (S. sibirica), with larger, bright blue flowers. Some of the dwarfer tulips would be found of great value in sunny positions where the foliage would not interfere with the permanent rock plants. A selection should include the yellow flowering T. Batalinii, the cream coloured T. biflora; T. Clusiana (Lady Tulip), with white petals that are red outside; T. dasystemon, yellow and white, several on a stem; T. persica, brilliant yellow; and T. saxatilis, with delicate rose coloured flowers having a bright yellow centre.

Among the hardy Cyclamen are several beautiful little plants suitable for associating with scillas, daffodils, muscari and other dwarf growing bulbs. The winter-blooming C. Coum is one of the first in flower, producing its deep rose-coloured flowers from December to March. Differing from the above in having marbled leaves is C. ibericum from the Caucasus, with flowers ranging in colour from deep crimson to rosy lilac and almost white. Later on in the spring we have the South European C. repandum, with ivy-like leaves and bright crimson flowers, followed in July by the fragrant C. europaeum, with its large kidney-shaped leaves and crimson flowers. One of the best is the autumn-blooming C. neapolitanum, which produces its flowers before the leaves. The large, handsome, silver marbled foliage is also very attractive and almost worth growing for its beauty alone, but when established the large corms produce a large number of flowers. These vary in colour from rosy pink to pure white and last for a long time in perfection, with the exception of C. repandum, all are quite hardy, and given a sheltered nook that is not too sunny, these charming plants soon become established, and repay a little trouble taken in preparing a suitable site and supplying perfect drainage.

W. IRVING.



ONE OF THE MORE CHOICE MEMBERS OF THE IRIS FAMILY, I. RETICULATA.

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DAFFODIL CULTIVATION IN THE OPEN AIR

LIKE every other family, that of the daffodil is made up of members which are not mere replicas of one another, but which vary considerably in their likes and dislikes. King Alfred grows like a weed in the moist climate of Cornwall, but it is a failure in the majority of Midland Counties. The old-fashioned bunch-flowered daffodils, the tazettas, like Gloriosus, Soleil d'Or, Mont Cenis, Grand Monarque, etc., require more warmth and more genial surroundings than can be offered them in most English gardens. The delightful white trumpets, like Cernuus, albicans, Matson Vincent, Mrs. Thompson, etc., are difficult to accommodate and seem only to flourish in certain favoured positions and places. The poeticus varieties like a rather stiff cool soil, and the old "Double White" deep planting in addition. N. triandrus var. calathinus (the large Angel's Tears daffodil) must have exceptionally quick draining soil and a damp climate, otherwise its cultivation is impossible and its life is but a living death. This diversity is only what anyone might expect who has realised the varied habitats of the different members, but notwithstanding all this there is a great residuum which is quite happy and content with the usual conditions of a British garden.

Soil.—After the experience of many years I have come to the conclusion that the ideal soil is one which is well drained and warm, if anything upon the light side, with but little vegetable humus, as deep as possible, and as finely ground up as possible, like the wonderful buttery medium that Mr. Engleheart has at Dinton. A warm soil must not be taken to mean a warm position where the sun's influence is great, for perhaps daffodils do best where there is a certain amount of shade from a hot afternoon's sun, although all the more robust varieties are not in the least particular in this respect; nor must a warm soil be taken to mean a cosy, sheltered position, for although this suits all daffodils, it is something quite different. By a warm soil is meant one which is well drained and which has but little vegetable humus in its composition. Good drainage does not mean a dry, hot soil where there is but little moisture. Moisture is a vital necessity, but it must be available in the place where it will do good, and this can best be expressed by saying that all daffodils like to have their bodies dry and their hands and feet wet. It seems a curious taste to us, but it is what the daffodil likes and, more important still, it suits the daffodil. A damp climate like that of Cornish valleys near the sea, or that of the western and southern parts of Ireland, is exactly what the leaves enjoy, and I am disposed to think that many failures like that of King Alfred in most midland counties, must be put down to the want of a moisture-laden air. Again, although good drainage is vital, there must be a good supply of moisture for the roots. In many places the subsoil is naturally of a damp nature. Where this is not so Nature must be imitated, and very hot and light soils are made much better by burying some strawy manure or partly rotted leaves about 15ins. from the surface to act as a sponge or damp subsoil from whence supplies of moisture may be drawn.

Water-logged soil in beds and borders must be avoided at all costs. In Holland a great deal of labour has to be spent on making and keeping the ground at the right level, otherwise there would be danger of the water being too near the bulbs. So in our English gardens if we have a nasty, sticky soil which holds water like a sponge, we must do all we can to make it lighter by incorporating in it a considerable quantity of *very old* spent manure, and if possible giving it a good double digging every year until it is "humbled." In damp, clammy soils bulbs may be planted within the region of tree roots with the best results. I had a clump of a variety called Astra which obstinately and repeatedly refused to flourish elsewhere in the garden, growing in the rudest health within the sphere of the roots of a Picæa nobilis. I also find a stray clump of Horsfieldii and another of the old Leedsii amabilis "do" amazingly almost literally in the middle of privet hedges. King Alfred needs a warm soil.

Manuring.—Although I can give no scientific explanation of the benefits which accrue from liming, I am none the less convinced of its efficacy. Whenever lime is wanted, it must be at once given in some form or another. Nothing is better than ordinary slaked lime which has been obtained freshly burnt from the kiln, covered, after being made into small heaps, with soil and allowed to crumble. It must then be spread over the land on a dry, calm day and at once dug or forked in. About two tons per acre is a suitable dressing, but for small patches the ground should be covered till it has quite a white appearance, as if there had been a "scattering of snow." Bone meal (fine ground) is the best and safest manure to use, but basic slag may be added in small quantities to heavy and kainit to light soils. In all cases the artificial manure should be thinly spread on the land and then dug in.

Planting.—There is no doubt that all bulbs should be planted as early as possible in the autumn. My tiny seedlings from pans I put in the ground without allowing them to get dry, and all experts who have valuable bulbs simply transfer them from one bed to another, or, if they have been dried off, they get them underground as quickly as they can.

Invariably I would advise early planting. In a certain autumn I planted a bed with Olympia, Fairy Queen and Ben Jonson. Every Monday from July 29th to November 10th I put in a row of each. I was thus enabled to see the effect of early and late planting. The difference between the extreme dates of planting was very great. After October 13th a great falling off in height was noticeable, hence I conclude that mid-October is the latest date for good results. When bulbs are planted in November, or later still, they suffer. The way the bulbs are kept has a decided influence. The longer they are to be out of the ground the more particular ought everyone to be about storage. Never keep the bulbs in bags, but always spread them out on trays or shelves in a dark, dry, airy room or shed, and after October comes in turn them every week.

Depth at Which to Plant.—A bulb should be covered with twice its own depth of soil. This is a safe guide. Thus, one which is 2ins. long may have 4ins. of soil above it, and so on. In light soils the depth may be slightly increased. Deep planting in reason tends to increase the size of the bloom owing doubtless to its having a longer period of growth in which to develop. The flower of a stray bulb left in a bed is almost always extra good. The reason seems to be that if we try to get it up we will find it to be down a great depth.

Position.—Daffodils are not particular about position as a general rule. All the red cups and red-edged varieties with very few exceptions burn very quickly in the sun. The beautiful Sunrise will lose its colour in a couple of hours. So, too, many of the red-eyed poets. The place for all these is under a north wall or hedge, or under a thin clump of trees. In the former positions not only is the colour preserved, but the flowers all have their faces looking, as it were, at you, which is a distinct gain. Triandrus albus, triandrus hybrids, certain white trumpets, probably King Alfred and some other difficult varieties do best planted among the roots of trees in a sheltered place. Excessive moisture in the ground does not suit them, and the roots apparently absorb that which is deleterious.

Changing the Ground.—Like every other plant, the daffodil thoroughly appreciates a change of ground. Where this is impossible the best alternative is double digging, at the same time introducing some old decayed manure in the bottom trench and higher up some boiled bone meal. This is a great asset in producing first-rate show blooms. Where collections are grown in beds by themselves, this should be done every other year. I know its value from my own experience.

Varieties to Plant.—The short list which follows are some of those which will be found most useful for ordinary planting in borders or beds. Red cups do best in pots in a cool greenhouse, where their beauty may be enjoyed before the sun gets too much power. Or, if they can be cut before they are fully expanded and opened in water, or if they can be shaded *in situ*, they are all right planted by themselves. If, however, some red cups or edges are wanted for beds, nothing beats old Barrii conspicuus or Firebrand, Lucifer (in light soil), Blackwell and Torch. More expensive ones are Crœsus, Bernardino and Firetail.

Omitting them all, these gaily coloured gentlemen, I would suggest the following

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as suitable for ordinary use and ordinary pockets: Trumpets.—Emperor, Cornelia, Olympia, Florence Pearson, Empress, Weardale Perfection and Duke of Bedford. Cups.—Sir Watkin, Pedestal, Seagull, Lady de Bathe, Lady Margaret Boscawen and Noble. Leedsii.—Countess of Southesk, White Lady, The Fawn, St. Olaf, Evangeline and Norah Pearson. Poets.—Virgil, Horace, Sonata and the old, old recurvus. Bunch-flowered.—Aspasia, Jaune à Merveille, Orange Cup and Alsace. If only it were a better doer, Admiration would not be left out. Various.—Campernelle Jonquil, Argent (double white), cyclamineus (rockwork) and J. T. Bennett-Poë.

J.

BULBS AS CUT FLOWERS

BY H. AVRAY TIPPING.

AN ARTICLE WHICH SHOULD ASSIST YOU TO OBTAIN THE MOST ARTISTIC EFFECTS IN THE PLACING AND ARRANGEMENT OF BULBOUS FLOWERS.

LONG ago we abjured the tight-packed, short-stalked bouquets beloved of our grandmothers. Rather do we aim at negligent if artful looseness, at the "airy lightness" that made folks think they saw Grinling Gibbons' flower carvings shake in the wind. We recognise that a bloom is more—much more—than a dab of colour; that it has exquisiteness of form, charm of light and shade, of tone and texture; that it has a thousand delightful ways of poising itself on its stalk, of exhibiting itself in conjunction with leaf and stem.

A WELL-ARRANGED BOWL OF SNOWDROPS.

Nothing in the floral world lends itself better or more readily to such treatment than tulip and daffodil. How noble is the effect of a few of the pink globes of the Darwin tulip Clara Butt, crowning long leaf-set stems and rising high out of a tall beaker. How well we can transfer a microscopic bit of the garden to the sitting-room by wedging into a Japanese bronze "sand bath" a handful of the blooms and buds and leaves of the delicate hued and gracefully shaped narcissus Mrs. Langtry. We can make them look as if they grew there, and cover the bent lead slips we have wedged them with under a sheet of moss fresh from the wood. There is no end to the subjects we may use or the ways in which we may use them. Even short-stalked and leafless tulips yield a good effect of concentrated colour and form limited to the flower itself when a few are put into an open dark-hued bowl as seen on the cover of this issue. Pick a handful of trumpet daffodils and plunge them as they are in a jar that fits them—that holds them up and agrees with them in form and tone—and you get an effortless yet satisfying result, especially when, as in the example illustrated, a ray of sun plays on it and gives gaily of light and shade. Haste and hazard, however, although they may occasionally produce happy results, are not to be adopted as a main principle in flower arrangement. Thought and preparation are surer aids to success. If—as is really best and most satisfying—you rely on the produce of your own garden, you must, as in all garden operations, think well ahead. Consider at once what material you would like to have at hand next spring, and supplement what you may already have by promptly ordering from your bulb grower. Plan out your cut-flower scheme as carefully as you do your bedding scheme. Give consideration to your rooms, to the places therein where certain flowers, duly selected, arranged and placed to suit the picture, will show themselves off and yet agree with their environment, will give completeness without plethora, will add grace rather than produce congestion, will add their own note of form and colour and yet avoid discord. A room crowded with furniture and ornaments, with photographs and "silver tables," with coloured cushions and pinned on bows of ribbon, is no place for flowers. When you do introduce them in the house give them precedence, let them be the chief actors, on them turn the limelight. But if they are to fulfil such premier

TRUMPET DAFFODILS.

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rôles, they must not only be choice in themselves, not only excel in quality rather than quantity, but they must be trained to their most effective presentment and given the right setting. It is of very great importance what you put them in. For cut-flower arrangement the flower, although the first and essential material, is not the only one. The vessel that gives them water and maintains them in position is part and parcel of the arrangement and must fit its part. It may have beauty, but not obtrusiveness. It is a utilitarian adjunct called forth not to display itself but to assist in displaying the flowers. It is the mount that frames the drawing, the setting that holds the jewel. It must have no separate existence, no assertive individuality. China vases of elaborate shape and rich decoration are detestable for the purpose. Simple bronzes of fine outline and proportioned to their purpose are the very best. They are better than glasses of the same form in that opacity is desirable. The flowers look better when their stems do not show their cut ends, but rise, as it were, from solid earth. Thus, next to bronzes, which are difficult to get, earthenware vessels take the first place. The shapes readily turned upon the potter's wheel are as good as any. They cannot be too simple in form or quiet in colouring, but so long as the basic principle of unobtrusiveness is kept well in sight, a measure of detail and some patterning of colour are allowable. But the great thing is to have enough. When you have selected the flowers from what you have to pick from in the garden you should then select the vessels that will exactly suit from an array of them on a special shelf. There should be bowls and dishes, cylinders and beakers, vases high and low, much open and nearly closed, long-necked and short-waisted. The cleverer and more experienced you are in flower arrangement the less you will want, for the finished craftsman can get his results with the least tools. But, so far as you can, give yourself freedom of selection both of the flowers you pick and of the vessels you put them in.

MAY-FLOWERING TULIPS

TULIPS HAVE LONG BEEN COMMENDED FOR THEIR EASY PROPAGATION, MANAGEMENT AND GENERAL HARDINESS IN ALL SEASONS. WITH THIS WIDE APPEAL, THEIR EXTENDED CULTIVATION AND GREAT POPULARITY ARE FULLY DESERVED IN THE SUBURBAN PLOT OR THE SPACIOUS GARDEN.

THESE easily grown flowers provide a brilliant colour display when the rich greenery of spring is at its best and the pageant of summer has scarcely begun. Tulip-time is one of the gayest periods of the year, and it is doubtful whether the feast of colour from roses, dahlias, sweet peas or carnations can surpass the gorgeous colouring that masses of tulips can produce.

A PLEASANT AND EFFECTIVE ASSOCIATION OF TULIPS AND FORGET-ME-NOTS.

Tulips like a sunny sheltered position, and although the finest flowers are probably produced from plants grown on well-drained soil with plenty of " body " in it, there is no reason to despair if the soil is on the light side. If a liberal quantity of well rotted cow manure is worked into light soils, this binds the particles together and soon forms a good medium. My own soil is a medium loam, rather inclining to the light than to the heavy side. It is mealy and silky to the touch when in proper condition, and with the addition of cow manure, bone meal and lime it seems to suit tulips admirably. Where the soil is heavy and cold, plenty of strawy manure, leaf-mould and remains from the garden fires should be incorporated when digging it over, and the surface soil should be well dressed with lime. The proper application of lime on all soils is recommended for tulip culture. Bone-meal is a safe artificial manure to use, and owing to its slow-working capacity its benefits are spread over a long period. Leaf-mould and finely chopped turves, well mixed into the lower levels, not only prevent the soil from being water-logged, but they are conducive to root formation.

Perhaps I had better describe the situation in my own garden, where I have found tulips grow to the best advantage, as I believe that it is not far off an ideal site. There are two long borders, each about 4ft. wide, on either side of the lawn, and at the back of each there is a privet hedge about 4ft. high and very dense, with various low-growing shrubs near the base of it. One of the borders receives the morning and early afternoon sunshine, the other from about 10 a.m. to 5 p.m., so that the situation is both sunny and sheltered. The borders are large enough to accommodate about two thousand bulbs when closely massed.

Tulips lend themselves to massing. If grown alone, providing they have a suitable background, they are very effective; but, if desired, they may be associated with other subjects, such as wallflowers or arabis; but some care is needed when planning out colour schemes. A carpet work of violas or polyanthas may be used, or the beds or borders may be edged with these flowers or forget-me-nots.

I have mentioned the need for growing them in a sheltered position. Many of the Darwins will attain a height of 36in., and, unless these are protected from the winds by a hedge or wall, some of them will be broken. To tie them to thin stakes, however neatly this is done, would destroy their effectiveness for garden display; but where they are grown in out-of-the-way corners for cutting, protection from wind by any means may be given.

Some people like the appearance of tulips when they are in the half-open stage, *i.e.*, in the early morning or after the sun has gone down; but I think that their brilliance is enhanced when they are seen in full sunlight. Looking along the borders when the sunlight is falling upon the flowers gives one an

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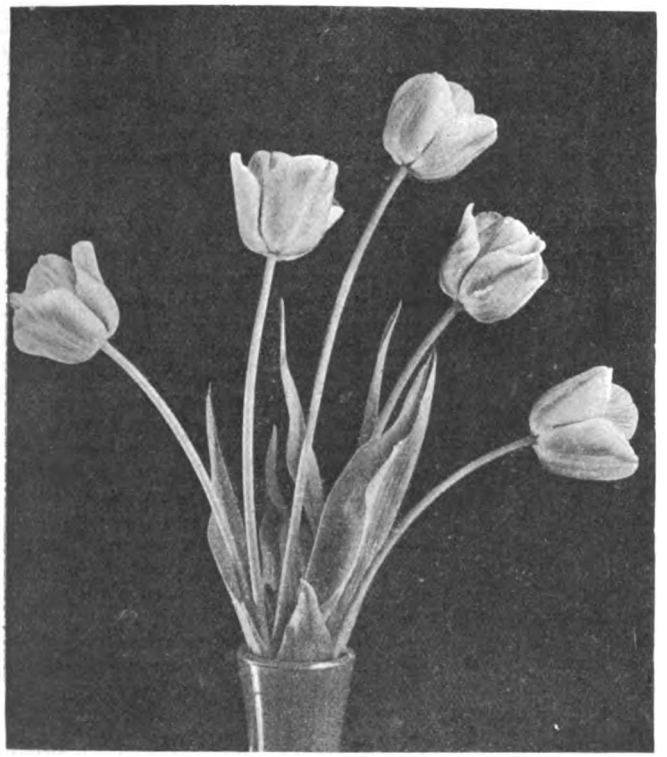

REV. H. EWBANK, ONE OF THE FINEST OF THE DARWIN TULIPS.

impression of hundreds of illuminated lanterns. Coming closer, there is still another feature to admire in their beautifully coloured bases, and I have spent hours examining the lovely hues and colour gradations, the beauty of which is hidden when the bloom closes.

Generally speaking, we may divide the May-flowering tulips into two main classes, viz., cottage tulips and Darwin tulips. The former, which comprise varieties rescued from the cottage gardens of these islands, and the progeny of the earlier found varieties, are of a somewhat pointed or egg-shaped form, with slender stems. As a rule their height varies from about 18ins. to 27ins. The Darwins are of bolder formation. The flower is cup-shaped with a rather square base, and the petals are rounded. The stalk is long and strong, but there is a certain amount of gracefulness about them and they never look stiff and formal, whether in the garden or arranged in tall vases. They are very beautiful for room decoration. When cutting them do not take more than one leaf with each flower, so that the bulb is not damaged.

When tulips have finished flowering they may be allowed to die down or the bulbs may be lifted and covered with a few inches of soil in a reserve trench, leaving the tops to wither before drying and storing.

I have grown nearly all the best varieties (with the exception of some of the more expensive novelties) in both sections. The following would make a good dozen for the amateur who is starting a collection :

COTTAGE VARIETIES.

ELLEN WILLMOTT.—A beautiful soft creamy yellow with reflexed petals. The flower has a delicate fragrance.

MRS. MOON.—A long pointed bloom of rich golden yellow. Tall and rather late-flowering. A very stately tulip.

GESNERIANA MAJOR.—A brilliantly coloured crimson with a striking blue-black base. One of the most striking varieties for the open border.

ORANGE KING.—This is a very beautiful orange self with a light suffusion of pink on the outer side. It is sweetly scented and very useful for cutting.

INGLESCOMBE PINK.—There are many indescribably beautiful colour blends in this tulip. It changes colour as the bloom ages, from bright pink shaded with buff and salmon to softer and more delicate hues.

LA MERVEILLE.—This is a lovely colour, a blend of salmon and vermilion, and it is pleasing either in daylight or lamplight. It is late flowering. Sweetly scented.

DARWIN TULIPS.

CLARA BUTT.—This variety is well known, but there is nothing quite so rich in the pink shades. The colour is a lovely pale rose pink suffused with salmon.

FARNCOMBE SANDERS.—This shares with Clara Butt the position of honour among the popular Darwins. It is a brilliant colour, which is probably best described as rich cochineal red. It is very strong in habit, large flowered, and lasts a long time in water.

REV. H. EWBANK is a very beautiful heliotrope with a lighter edge, and it is probably the best of this colour at a low price. It is early flowering and not tall growing.

PRIDE OF HAARLEM.—This is one of the largest of the Darwins. The outside is carmine and the inside more inclined to scarlet. It should not be planted near other red shades, or the colour effect will be spoiled.

MARCONI.—I like this variety and Mrs. Potter Palmer, the best of the rich purple shades. The former is a strong grower with large well-formed blooms. Planted near the cottage variety, Orange King, it makes a fine colour contrast, and with me both are in bloom at the same time.

EDMEE is a deep rose with a paler edge. It is a good grower and produces a large, finely shaped bloom on a long stout stem.

All the above-named varieties are inexpensive. There are some very choice kinds in the scarcer sorts, and of these I recommend a selection from the following : Beauty of Bath, a delicate blend of pale rosy lavender and canary yellow ; Boadicea, a rich mahogany brown with an edge of orange ; Scarlet Emperor, a brilliant fiery scarlet ; and Zomerschoon, a glorious fancy, deep salmon rose flaked with yellow. These are cottage tulips. In Darwins, Afterglow, soft apricot orange suffused with pink ; City of Haarlem, a large vermilion self ; Massanet, pale fawn with deeper shading and creamy edges ; Faust, rich glossy purplish black ; The Bishop, rich purple shot with lilac ; and Valentine, an early variety with bright violet flowers displaying an attractive electric blue centre, can be recommended. The latter is one of the largest Darwins in cultivation. I have grown blooms 4ins. long which have lasted three weeks, and which provide excellent decorative effects.

NORMAN LAMBERT.

THE LONG POINTED AND RICH GOLDEN YELLOW BLOOMS OF MRS. MOON, AN EXCELLENT COTTAGE VARIETY.

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MUNICIPAL GARDENS of LANCASHIRE

IF there are many claimants for the attractive title of "Garden City," few can hope to rival, much less excel, what Southport has achieved in the making of those public gardens which have earned for that beautiful seaside town so wide a reputation.

When I visited these gardens it was in the flaming days of June, and though drought and the "between season" were a combination which did not tend to present the beds and borders in their brightest aspect, there was evidence on every side of that abounding wealth of colour and interest which are timed to be at their fullest during the show week, and of which the corporation and people of "England's Garden City" are so justly proud.

ONE OF THE FINEST OF HERBACEOUS BORDERS: ROTTEN ROW, SOUTHPORT.

A CORNER OF THE ROSE GARDEN IN HESKETH PARK.

The main attraction for garden lovers at Southport is, perhaps, Hesketh Park, a beautifully wooded and watered area of 30 acres, which is also the headquarters of the Park's Superintendent, Mr. Clarke, and his army of between 60 and 70 gardeners to whom so much of Southport's horticultural fame is due. Space will not permit me to do anything like justice to the cool and ferny retreats, spacious lawns, rose gardens, mixed borders of shrubs and perennials, summer beds, conservatories and other delights of these fine grounds, each of which is so embraced by its own sheltering belt of trees that there is always an element of surprise awaiting you at the ends of the shady walks which link them together.

Early as it was, there was already a brave show of colour here among the delphiniums, irises, geums, liliums, thalictrums, lychnis, inulas, anchusas, erigerons, sweet peas, violas and a host of other things, and some 3,000 rose trees were all promising a rare treat for the August visitor. That bedding roses should succeed at all in the almost pure sand on which Southport is laid out was a surprise, but it was evident that, in addition to the horticultural skill bestowed upon them, these and many other subjects owe no little of their health and well-being to the sinking of the gardens, this giving shelter from wind and bringing the roots nearer the "ream water" which lies in some places only a few feet below the surface.

Rock gardening has not yet been made a strong feature at Southport, but there are one or two nice little bits leading the way to further developments in Hesketh Park, and the way in which cistuses and helianthemums, brooms, sedums, many saxifrages, veronicas and aubrietias were flourishing in their sandy retreat was sufficient to encourage further advance in this direction. Near to one of these rock gardens were some twenty specimens of carpet bedding, so admirably executed that they looked like pieces of mosaic or tapestry set in the grass. Whether you regard these as curious relics of a now half-forgotten age of gardening, as highly decorative examples of the "textile" art as applied to horticulture, or what not, they should not be missed by any visitor to the town. Moreover, among the various gaily-coloured occupants of these quaint beds are not a few sedums, echeverias, sempervivums and other plants which are of unusual interest.

These carpet beds, after all, remind one of the fact that here, as in many places, the gardener must be guided mainly by two factors: he must grow what suits his soil and he must, in particular, grow what appeals most strongly to the majority of his visitors. That being so, to experiment and specialise is outside his sphere. The public asks for great splashes of colour, for commanding displays of bright and cheerful flowers, and, in such instances as these, for flowers that will be at their best throughout the later summer and early autumn. Is it surprising, therefore, that one comes across in Southport legions of Paul Crampels and Coltness Gems, vast reaches of antirrhinums and montbretias, of delphiniums, gladioli and begonias? And, when all is said, the public is not a bad judge in these matters, for I question whether there is anything that would do what is expected of them so economically and well and give so much pleasure as, let us say, the occupants of those gorgeous borders in Lord Street, or the wonderful displays which adorn the Marine and Prince's Parks and King's Gardens along by the sea. There are literally hundreds of acres devoted to this style of gardening in Southport alone and it would be difficult to suggest anything that would

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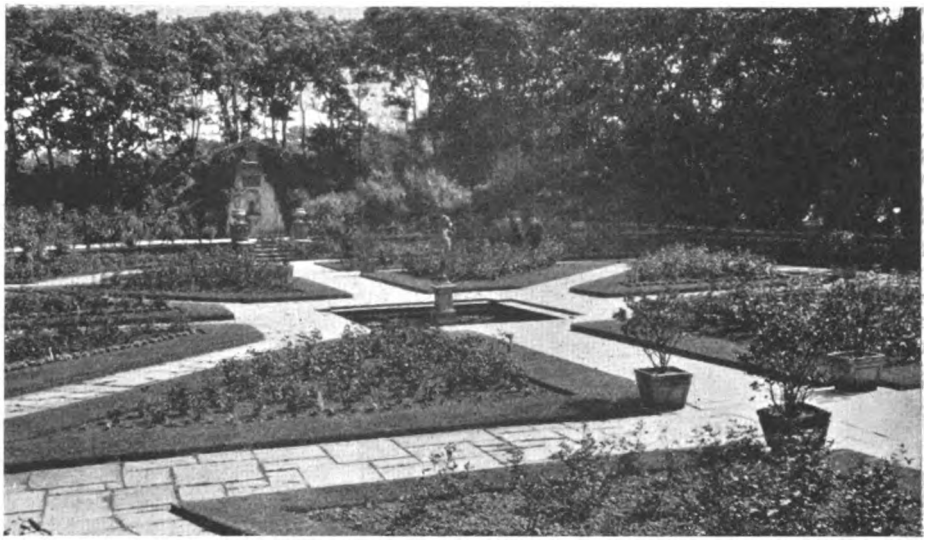
serve its purpose better. Very cleverly, the purely blatant pageantry of the wholly formal and gorgeous has been tastefully ameliorated by the free use of shrubs, trees and other helpful factors, but the bedding plant still triumphs as it always will under such circumstances.

Though I felt like the Queen of Sheba at the court of King Solomon before getting to the end of the above and other gardens, there was still the great border which flanks Southport's Rotten Row to be seen, and here I soon found that in all the eulogies that one had heard and read of this ambitious display of flowering plants, not a word too much had been expressed. Imagine a gently curved belt of ground, 20ft. to 30ft. wide and fully half a mile long, planted from end to end with the best and choicest of herbaceous and other plants, and you will perhaps gather some idea of the vastness and the splendour of this wonderful border. Here Mr. Clarke has broken clean away from the formal; he has arrayed his thousands of plants in a disarray which is eminently satisfying, but never monotonous, and so cunningly is the grouping carried out, so varied the selection and so well grown the plants, that I found myself being pulled up by something of interest at every yard of this amazing piece of work, which is probably not excelled by anything of the kind in Europe. And when one bears in mind the fact that all these gardens—and I have but touched upon some of them—have been created on what was, comparatively few years ago, a wilderness of wind-driven sand, the signal success which has crowned the efforts of those who undertook the task and still see to its maintenance is beyond description.



THE OLD-TIME SUNKEN ROSE GARDEN IN THE ASHTON GARDENS, ST. ANNE'S.

A PORTION OF THE CARPET GARDENS, HESKETH PARK.

My little tour in Lancashire, whose "Lilies of the Valley" are obviously not all of the factory-chimney genus, as the old cynic had it, embraced the delightful little towns of Lytham and St. Anne's. The former possesses in the Lowther Gardens a pleasant, park-like area overlooking the estuary of the Ribble. Here gardening *per se* is taken less seriously, the several acres being mainly devoted to the uses of a pleasure ground. But there is a breezy and natural wildness about these cliff gardens which is appealing, and in the fine old evergreen oaks, groups of Scots pines, elms and other suitable trees, which break the uniformity of the spacious lawns and give shelter to the flower beds, these Lytham gardens have a charming and priceless asset.

Within a few minutes by road from Lytham one is at St. Anne's. I had often heard of the rock gardens here, but had never realised that in the construction of these the bold spirits who created them had nothing more congenial than a wilderness of wind-raked sand dunes to work upon. They must have been stout hearts, indeed, who undertook to tackle such a hopeless proposition. But it has been done and done well, and when I found myself between banks of Cistus monspeliensis and C. florentinus, great bushes of Senecio laxifolius, all silver and gold, of helianthemums in many varieties, and noted among the limestone boulders the dwarf campanulas and veronicas, dianthuses, saxifrages, sedums, geraniums, thymes and a goodly round of other rock plants, I felt that something like a miracle had been performed. Moreover, there were tucked away in the dug-outs of this sandy waste, over which the wind whistled through the wiry marram, some cheerful evergreens, bright beds of herbaceous plants, groups of Spartium junceum, brooms and other allied shrubs, and, what was still more surprising, gushing falls of water tumbling into placid pools with their irises and other acquatic subjects.

Thence along the front of St. Anne's comes a number of excellent marine gardens, like those of Southport, but on a smaller scale, the formal style again being in evidence with a grateful leavening of shrubby veronicas and other evergreens, tamarisks, sea buckthorn and the like. St. Anne's chief lion in matters horticultural is, however, the Ashton Gardens,

A SUCCESSFUL ROCK GARDEN MADE FROM THE SAND DUNES AT ST. ANNE'S.

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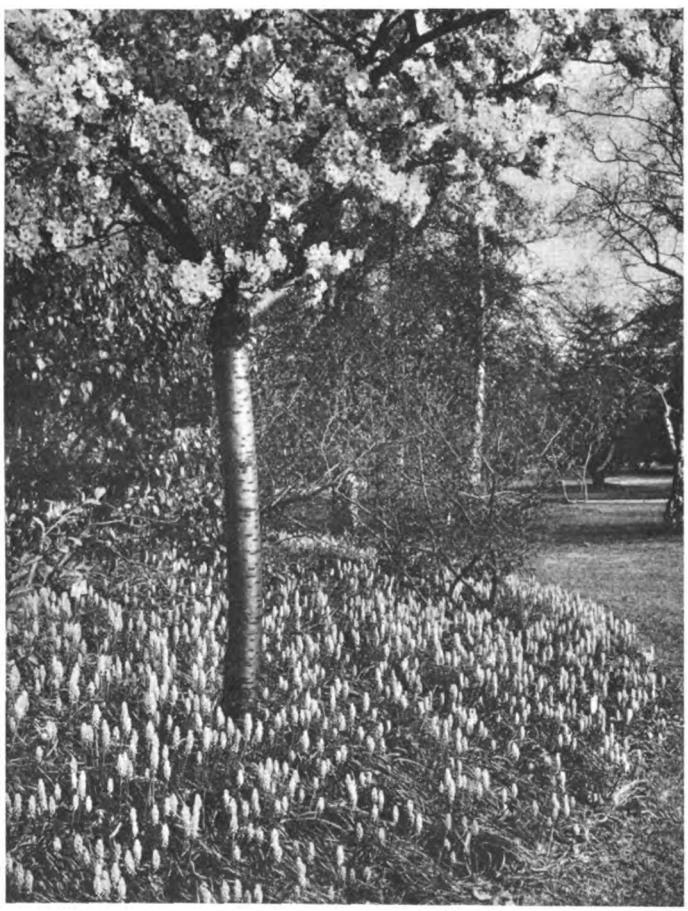
which were presented to the town by Lord Ashton about ten years ago. These should not be omitted from the itinerary of any gardener in this district, for not only have the beautiful grounds all the charm of maturity and seclusion belonging to the private domain, but they contain a wider variety of choice shrubs and trees than is usually seen in municipal gardens, and the lay-out is in every sense attractive. It was the large, old-time sunken rose garden, with its central pool and statue which was evidently the main attraction to the majority of visitors here, but throngs also invaded a circular, tree-fringed lawn which was surrounded and inset with gay borders and beds all done in first-rate order. A picturesque stream, with a fall and many shady retreats intersects the gardens and affords that flavour of wildness which always has a special appeal in a garden set in the midst of a town.

But, if my time—like my present space—was insufficient to allow me to make more than a superficial survey of these sea-coast gardens of the Cotton County, it was enough to afford me two dominant impressions. I was forcibly struck by that keenness and dogged determination to succeed which must have inspired those responsible for these great efforts and which is ever enthusing them to further enterprises. And it was impossible to escape the obvious fact that these municipalities, which have spent so lavishly and so well upon their gardens, have had an immense reward, a reward not merely of the æsthetic kind, but one which has materialised in the shape of that indirect revenue to which the gardens—like the well dressed shop window—are a drawing power and contributory factor of the utmost practical significance.

A. T. J.

THE GRAPE HYACINTHS

IN selecting this title for my article I am following both Bailey ("Standard Cyclopedia of Horticulture") and Nicholson ("Dictionary of Gardening") in the English name they give to the genus. All the same, I feel it needs a sort of apology, and that a heading like that in Barr's Bulb Catalogue—grape, starch and feathered hyacinths—would, at any rate, have been more explanatory. Muscari would have been above suspicion, for of this family it may truly be said (with apologies to Richard Brinsley Sheridan) "where dictionaries do happen to agree, their unanimity is wonderful." Our Editor has lately introduced us to different types of gardeners. I myself might be called a collection gardener. Not that I ever go into the wilds of the world for my quarry, I gather it in my armchair or (to be more exact in my speech) at my writing desk when I search the appropriate catalogues that either chance or forethought has put in my way. One year it will be for early-flowering yellow tulips under glass; another time it will be for erythroniums; or, again, it will be Michaelmas daisies, or Dutch crocuses. In 1924 it was muscari, and in 1925 Ladhams' lobelias. All the better if I can have two strings to my bow. You cannot, however, do this sort of thing with everything unless you are a Gibbs, Beckett and Aldenham in one. To our Editor's grief he has told us he has found rhododendrons are beyond him and his garden, as they certainly would be beyond most of us. But there are no end of subjects of lesser magnitude which, if I may judge from myself and from the interest I seem able to create among my friends, anyone may go in for and be blessed in his deed. Thus it came about that catalogue time in 1924 saw me searching out all the grape hyacinths I could find. In this way I got together a collection of twenty-one species and varieties, including a Heavenly Blue seedling of my own which, I think, is a swan, but which public taste may class as only a duck. All that I will say about it is that it has a delightful scent and that it is a lovely soft pale blue in colour, totally unlike any other that it was my luck to bring together. I must introduce another aside. Has anyone taken up in a serious way the raising of grape hyacinths from seed, or the crossing the various species? Personal experience tells me that seedlings of Heavenly Blue vary considerably in my garden in their shade of colour, although I am not prepared to say that the old original botryoides, which abounds everywhere like a weed, may not have had something to do with the diversity. So with the trite and hackneyed *verb sap* I pass on and get to grips with the subject of this article—grape hyacinths.



MUSCARI HEAVENLY BLUE IN A CHARMING SETTING.

Let me suppose myself to be asked, "Now you have flowered your collection, what have you to say about grape hyacinths?" What has impressed me more than anything else is the absolutely chaotic state of their nomenclature. There are a few well marked species like paradoxum, comosum and moschatum, which are common property, but after these the deluge. The names in catalogues, the names in Bailey (where I find the largest number of species and varieties listed), and the names in Nicholson are a hopeless mix up. They were altogether beyond me. Therefore I appealed to Cæsar. Cæsar is a very famous gardener who delights in nomenclature and on whose nerves a false name is as a false note to a musician. Cæsar's verdict has made "confusion worse confounded." He found them distinctly "puzzling," and in no wise, I am sorry to say, mended matters. Here, then, is a chance for any botanically inclined gardener to set himself a stiff job, whose accomplishment would be a sort of Davy's safety lamp amid the pitfalls of unsupported naming and general haziness. From what has just been said it will not surprise readers to be told that there is a very striking family likeness between many of the species or varieties (for who is going to give an *ex cathedra* judgment as to which is which?). It rather surprised me. Not that there are no break-aways from the small blue urn-shaped bells which are *de rigeur* with the majority. There are the lunatics, comosum and comosum monstrosum, with part or the whole of their inflorescences turned into vegetable hairs; and there are the

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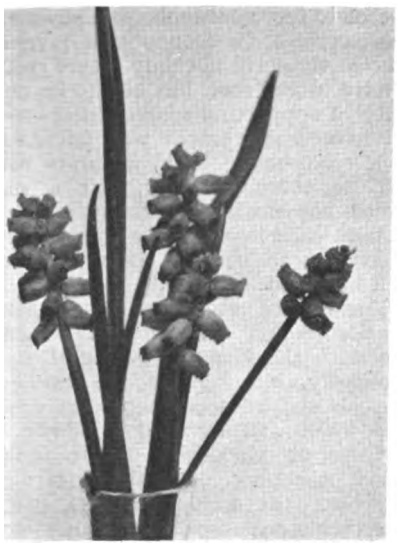
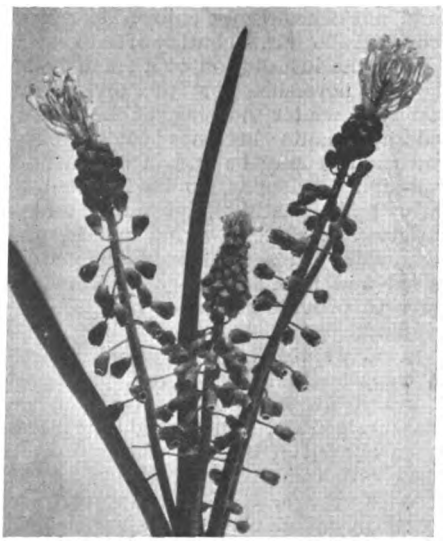


THE BLUNT-LOOKING M. MOSCHATUM.

moschatums or chameleons which change their colour with age. There is also an exception which proves the rule in the leafage of latifolius, which in its earlier stages of growth might verily be expected to turn into something after the style of our well known Lords and Ladies.

From a garden point of view, it may be said "there is more in their bark than in their bite." Their nomenclature is rather frightening, but, as far as my experience goes, they are easily accommodated in the matter of soil and situation. Any good garden soil suits them, and any situation so long as it is open. The flowers of the moschatum (musk) are affected by sharp frosts, so it is well to put them in warm and sheltered positions. Some species and varieties make good subjects for growing under glass, especially the feathered hyacinth (comosum monstrosum), as then its colouring is so much more delicate and the inflorescence develops more fully and has not the rather starved, unexpanded look that it frequently has when grown out of doors, but hard forcing must be avoided. I fear a large permanent bed (say, 4ft. wide by 10ft. or 12ft. long) in full sun, with nothing in it but a thickly planted mass of Heavenly Blue, is out of the question in many gardens; but if such should be possible, whenever the sun is a reality, there will ascend therefrom such a spicy smell that the unknown author of the famous poem about "what little girls are made of," had he been guided by his sense of smell alone, would surely have put it down as one of the ingredients "sugar and spice and all things nice." A far easier way to enjoy it is to gather a handful and put it in a vase in a warm room. Moschatum similarly treated would be



THE SHOCK-HEADED M. COMOSUM.

over-powering. Three or four spikes are sufficient for most noses. A little gathering of this size is reminiscent of a refined poetaz scent. Two of the three pictures in this number and the two illustrations which will appear with the next article show the diversity in form which is to be found in the species comprising the genus. JOSEPH JACOB.

SMALL GREENHOUSES AND THEIR UTILITY

THERE IS NO MORE IMPORTANT ADJUNCT TO THE GARDEN THAN THE SMALL GREENHOUSE, BUT ITS PROPER MANAGEMENT IS NECESSARY. A FEW TIMELY HINTS ARE GIVEN BELOW.

FOR some few years prior to the changed circumstances brought about by the war small portable greenhouses were constructed in quantities which were calculated to exceed all possible demands and, as in many other lines of business, efforts were made to meet prodigious competition by cutting down prices until some manufacturers used materials of such flimsy character that the occupants of the structures were afforded scant protection from severe weather, while some of the smallest houses could accommodatescarcely as much as a three-light garden frame. Small wonder that owners experienced irritation, failure and disappointment from such mere parodies of greenhouses, and that in consequence a widespread impression was created that the small greenhouse is but a snare and a delusion.

A COMPACT AND UP-TO-DATE GREENHOUSE SUITABLE FOR A SMALL GARDEN.

That is a true conception in so far as it relates to the 7ft. by 6ft. house, with sides of half-inch match-boarding and rafters that could scarcely sustain the weight of the thinnest, cheapest foreign glass, but it would be a grievous mistake to allow the opinion to obtain that a well constructed greenhouse of small size is useless, for, as a matter of fact, a house of 10ft. by 8ft. is capable of adding greatly to the enjoyment of one's garden, and, so far from the cost of a strong structure of this or slightly larger size being in the nature of an extravagance, it is quite capable of proving a sound investment and aid to economy. Much may be produced by the aid of a cosy little greenhouse, at a minimum of cost, which

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could not otherwise be enjoyed except at a considerable annual outlay of hard cash.

With the installation of a small boiler of the horseshoe or the cylindrical patterns, winter housing of half-hardy bedding plants becomes easy; chrysanthemums may be had in bloom until well-nigh Christmas, to be followed by early bulbs, astilbes, primulas and a variety of other flowering plants, and, meanwhile, on shelves, seedlings may be raised and plants propagated from cuttings to provide stock for next season's bedding.

In early spring begonias may be started in trays and later on potted to provide a grand display of bloom throughout the summer, or, if preferred, the house, when cleared of bedding plants, may be filled with tomatoes or with melons.

With the aid of a supplementary frame in which plants may be hardened off or azaleas, liliums and spiræas may be started, and in which primulas, cyclamen and calceolarias may spend the summer, a small greenhouse may be kept gay all the whole year round, and even under the stages a good crop of forced rhubarb or seakale may be produced to supply a moderate-sized household.

Without heat a small greenhouse will provide accommodation in spring for a most interesting collection of choice alpine plants in pots and pans, which can be removed to a plunge bed outside when flowering is over, thus making room for the summer batch of begonias or the alternative crop of tomatoes. The lover of hardy ferns needs but to select a position with a northern exposure and the small greenhouse affords ample accommodation for a fine collection which can be attended to in comfort whether wet or fine.

The choicest of the smaller rhododendrons and many remarkable shrubs, which find our erratic climate too trying, will make handsome plants of never waning interest when afforded the shelter of a glass roof.

Rosarians may enjoy early blooms from plants in pots, and from a good climbing rose trained to wires across one end of a span-roof or on the back wall of a lean-to house.

For hybridising, for the saving of seed of one's highly prized specialities, and for preparing plants and flowers of many kinds for exhibition, or even for decoration of rooms, verandas and balconies, the small greenhouse is a real boon, and, of course, the lover of perpetual-flowering carnations requires a greenhouse to enable him to grow his own blooms. The particular design and the interior arrangement of staging, etc., and also the situation of the greenhouse, must be governed by the individual requirements of the owner, but whatever these may be it is invariably essential that the house shall be strongly built of well seasoned materials and that ample provision shall be made for free ventilation without draughts. Safety lies in dealing with a high-class firm who specialises in quality of materials and workmanship. Messrs. W. Duncan Tucker and Sons, Limited, Boulton and Paul, Limited, Foster and Pearson, Limited, W. Messenger and Sons, Limited, and Skinner Board and Co., Limited, are a few of the well known firms whose addresses may be found in our advertisement columns, and who will furnish illustrated catalogues and specifications of really serviceable houses to suit all purposes.

Tenant's fixtures made on the sectional building principle with wooden walls are quite satisfactory so long as the timber is substantial and the joinery good.

Freeholders will, of course, be well advised to have houses built on brick walls, because the additional first cost makes for longer life and economy in upkeep, and in the roof structure the cost of a few additional iron stays and brackets will be money well invested, because they will not only ensure greater rigidity in the roof, but add to its capability of supporting suspended shelves.

Where a convenient wall offers itself as a ready-made back, a lean-to house will be found cheaper, but a span-roofed house with upright glazed lights on both sides is preferable for such plants as require to be kept symmetrical and well balanced.

There is an advantage also in having ventilators on all sides of a house, not with the idea of opening all simultaneously, but because the ventilation can always be secured on the leeward side when a strong wind is blowing.

Cane or wood-lath blinds fastened under a coping along the ridge of the roof are the best means of shading, for they need only be drawn when the sun is powerful, giving the occupants of the house full benefit of unrestricted daylight at all other times.

Portable stages are an advantage where a house may be required for tall chrysanthemums in autumn, and a miscellaneous collection of small young plants in spring.

If the house is to be heated at all, see to it that both boiler and pipes are of sufficient strength and capacity to maintain a good temperature without hard driving; it is better to be content with an unheated house than to have the constant anxiety of grappling with incompetent heating apparatus. Be sure to fix a good-sized water tank inside the house and run a pipe to it from the gutter troughs which receive the rainwater from the roof. Do not, however, overlook the necessity for an overflow pipe to carry excess water clear away or the greenhouse floor may be flooded, with unhappy consequences.

In the illustration a serviceable amateurs' greenhouse is depicted which will serve many purposes. A. J. M.

CORRESPONDENCE

FORTUNE'S YELLOW ROSE.

SIR,—I have just seen your correspondent's letter of July 4th asking the name of the climbing rose so much grown on Lake Como. I think he will find it is listed in English catalogues (Messrs. Easlea and Messrs. Cant both have it) under the name of Fortune's Yellow. It is, however, classed as "tender" and "must be grown on a south wall." I believe at one time it was called Beauty of Glazenwood.—A. L. HOWARD, *Gloucestershire.*

THE MINIATURE DAFFODILS.

SIR,—Following up the correspondence on this subject, I wonder if your correspondents have noticed the remarkably sweet scent of that little yellow gem, Narcissus juncifolius. It is almost the sweetest scented, I think, of all the daffodils. A very beautiful little hybrid between this and triandrus albus was exhibited at the Birmingham Daffodil Show this year by the raiser, Mr. J. S. Arkwright, and although as yet I believe unnamed, was recommended for an award of merit by the Floral Committee of the Midland Daffodil Society. The flowers were, as nearly as one can imagine, intermediate between the two parents. Mr. E. A. Bowles and I had a sniff at it, and the sweet juncifolius perfume was plainly apparent. Some years ago I crossed Narcissus triandrus calathinus with minimus, and obtained a flower with white cup and pale yellow perianth, an unusual circumstance, which seems to throw some light on the origin of the now seldom seen triandrus pulchellus, a flower of similar unusual relative colouring. Cyclamineus with minimus is another cross that I (and I believe others) have made; but I agree with Mr. Engleheart that all these little plants prove difficult to keep. It is a pity, for they have a most fascinating charm of their own.—F. HERBERT CHAPMAN.

SIR,—I have been interested in the correspondence by Mr. W. A. Watts in THE GARDEN of April 4th *re* miniature daffodils, and especially in the illustrations that accompanied it. I have had for a number of years a variety that I obtained under the name Infanta. As far as shape and appearance go, the flowers of this Infanta exactly resemble that figured as cyclamineus hybrid. On referring to the Classified List of Daffodil names as issued by the R.H.S. in 1923, I find that Infanta is described as a triandrus hybrid, see page 32-35, Infanta (Batson). Not only do the flowers of Infanta as I grow it resemble a cyclamineus hybrid, but its period of flowering is *very early*—before that of practically all the trumpets, while that of most of the triandrus hybrids is mid-season or later. I am sure that Infanta as I grow it is not a triandrus hybrid, but a hybrid from cyclamineus. So far, it has flourished exceedingly well with me, and is very floriferous. I would be glad if any readers of THE GARDEN could supply me with any information as to the origin of Infanta.—GEO. T. MAUNDER, *Gisborne, New Zealand.*

FEIJOA SELLOWIANA.

SIR,—I was pleased to see Mr. H. G. Hawker drawing the attention of readers of THE GARDEN (August 15th), to that delightful evergreen flowering shrub, Feijoa Sellowiana. My experience regarding full sun for this plant coincides exactly with his. I have planted it in semi-shade and also in full sunshine; those planted in partial shade have only displayed a solitary flower here and there, while those planted in a south aspect, exposed to the full glare of the

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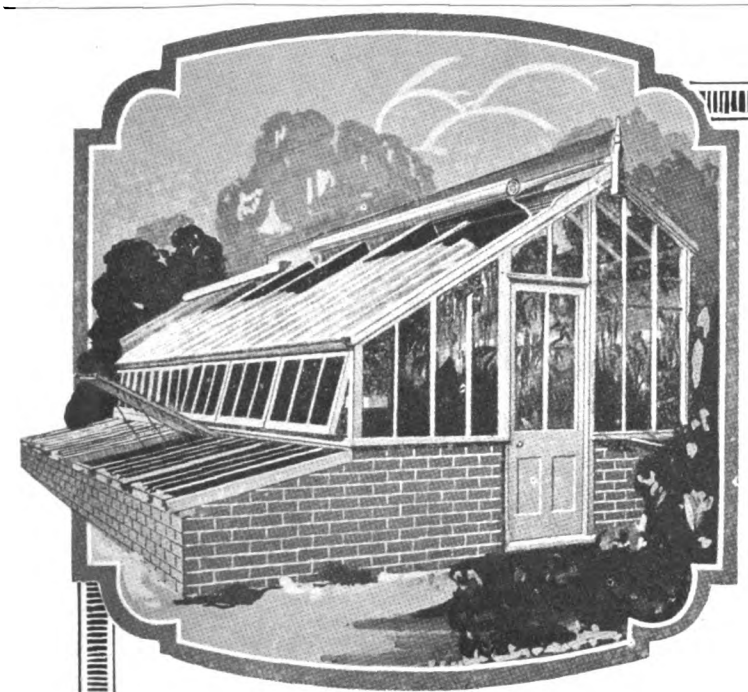

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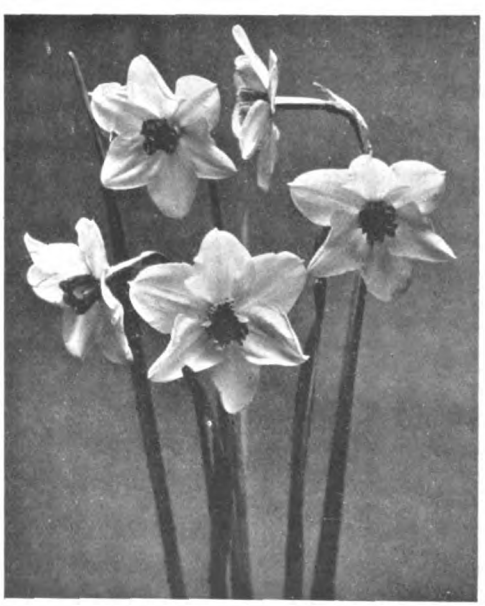

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sun, have always blossomed freely, though none have fruited. In fact, I think they rarely bear fruit when grown in the open air in this country. It forms a very fine bush in the open in the south-west counties. Its foliage is attractive, while the flowers are very quaint, thick, waxy white, with a conspicuous tuft of crimson stamens. Mandevillea suaveolens growing here in the open air on a south wall has been yielding a mass of its white fragrant flowers for some considerable time.—F. W. RICH, *Elfordleigh, Plympton.*

TRENCHING OF SOILS.

SIR,—I have been very interested in the various views on trenching that have from time to time appeared in your valuable paper THE GARDEN. "J. H." may be wrong when he is so surprised that so little interest seems to be taken in the correspondence on the subject; on the contrary, probably everyone reads it with interest, but from various reasons do not care to express an opinion in writing. To my mind trenching is all important, but I should have been doing a very foolish thing to have brought the bottom to the top, as the soil I had to deal with for nine years was Sussex clay the colour of American cheese 13ins. from the surface, and in some parts of the garden was what we called shray. Both for the growing of plants and working of the soil it would have been bad practice. I trench as early in autumn as possible, the dryer the soil the better, thoroughly break up the bottom of the trench and leave it there, forking into the bottom as much manure, leaf-mould or rotted vegetable matter as can be spared, leaving a layer on top as well. The one thing I had in view was to ensure good drainage by breaking up the bottom, and if one is fortunate enough to have dry weather during the whole operation the better it will be. A good illustration of the effects of mixing the clay with the top spit was a drain that had been put in several years before I took charge across the garden. It was quite easy to mark the drain by the less robust growth of any crop that was put on in spite of several efforts to give that area more manure, etc. I never sowed seed on it, as I found that if dry weather followed sowing it was far from satisfactory. The method I followed produced vegetables in plenty. Since leaving Sussex I have had experience of a number of different kinds of Suffolk soil, and in the particular garden I had charge of at Bury St. Edmunds the bottom spit was almost gravel and quite useless as a top soil. The soil I have now is probably the best that I know, not nearly so stiff clay as Sussex, and I see no reason for altering my method of trenching. I am a firm believer in breaking up the ground deeply, and would never plant new fruit quarters or even herbaceous borders without first trenching the ground as early as possible in autumn. I have never been fortunate enough to have soil good enough at the bottom to change places with the top.—W. PARKER.

PROPAGATION OF IRIS.

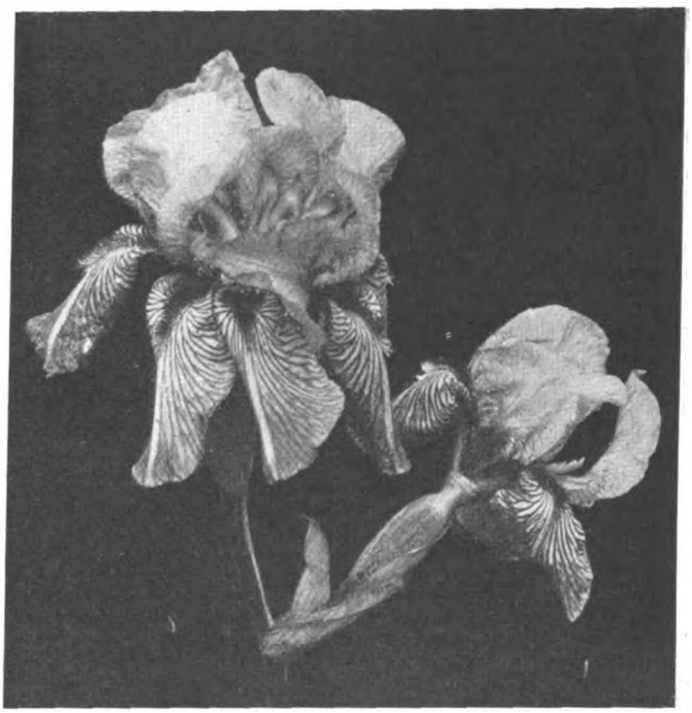
SIR,—The following note may be of interest. I ordered two dozen plants of the German iris last October from a first-rate firm; the plants, on arrival, were big and strong, but smothered with "spot" disease. I had no knowledge of the culture of these plants at all and I decided, entirely on my own, to take severe measures with the disease; they were to be cured or die, so I razed off all growth from the rhizomes, leaving them quite bald, thinking that I had probably "done" for the lot. I then planted them in their permanent places.

Next spring each of the rhizomes appeared as pale green in colour. On examining very closely the rhizome was a mass of minute growth all over, and from each plant I got from ten to twelve young, strong plants, which flowered the next summer. Out of the two dozen plants, I only lost one, the smallest increase on any one plant would be eight. I have since wondered if the trade increase irises in the same way.—H. C.

AN ABNORMAL FLAG IRIS.

SIR,—I wonder if any of your many readers who grow the bearded flag iris can tell me if it is at all unusual to find a flower bearing more than the usual three standards and falls. I enclose a photograph of one I cut a few weeks ago from my garden, which is unusually large and has no fewer than seven standards and seven falls. The variety is, I believe, Mrs. Reuthe, but I am not quite certain.

I have grown the flag iris for a number of years, but this is the first time I have seen anything so remarkable in the way of abnormal development. The clump from which the spike was cut is flowering profusely, but none of the other blooms is other than normal.—B. HANLEY.



A BEARDED FLAG IRIS WITH SEVEN STANDARDS.

CURES FOR ONION DISEASES.

SIR,—I was very interested to read, in your issue of THE GARDEN for August 8th, of the various remedies recommended to prevent disease and insect pests taking their toll of vegetables, thereby robbing the cultivator of the fruits of his labour. With regard to onions, however, I find myself at variance with your writer, after six years of experimental work on onions grown in these gardens. To begin with, the soil here varies from light, gravelly to clayey loam, which precludes, to a certain extent, any difference occurring through the different classes of soil. Again, allow me to impress upon all readers how essential good cultivation is in warding off disease, by encouraging that free, "kind" growth throughout the life of a plant, so gratifying to a keen gardener. Another point which is often overlooked is the supply of available plant food at all stages of growth. In the case of onions, it is very unwise to rely solely on farmyard manure to give a bounteous crop, as it seldom contains sufficient potash, and there is always the risk of the plants receiving a check, which would render them susceptible to disease. The risk is greater on light than on heavy land. A good and cheap potassic manure is wood ash, when available. This should be dug in in the autumn along with farmyard manure, where autumn digging is practised, but, of course, trenching would be better in most cases. If this treatment be followed up by two applications of nitrate of soda or sulphate of ammonia during the early stages of growth, one can reasonably expect the plants to have a sufficient supply of available plant food during their lifetime. Perhaps all this may appear in no way connected with disease and pests, but a little thought will prove otherwise. If plants are in a healthy condition, the risk of disease is minimised. I have found the greatest aid in warding off an attack of onion fly and maggot is by the use of Terrafumite. One is inclined to think the various 'ites sold by nurserymen, etc., are identical, but I have always found Terrafumite the best. My method of applying is as follows: For spring sown onions, on land previously manured with farmyard manure and wood ash, 1 cwt. of Terrafumite mixed with 28lb. of super-phosphates, 30 per cent. spread at the rate of 1lb. of mixture to three square yards the day previous to sowing seed, if possible, but if there is any doubt about the weather, apply in the morning, rake well in, tread or roll the ground and sow seed in the afternoon. In order to test the merits of Terrafumite, 1,000 onions were planted out as a plot, using 1lb. of Terrafumite to three square yards, but no super, as I considered the land was good. The onions were planted out April 14th, and fed twice with sulphate of ammonia, about a teaspoonful the middle of May and the same quantity about four or five weeks after. Two seasons previous the ground had been planted up with onions, but the crop was a failure owing to maggot. Out of the 1,000 onions planted only six were affected with maggot sufficient to spoil the bulbs for kitchen use and three or four more were slightly affected. The varieties of onions were Dickson and Robinsons' Premier, Sutton's A1, and Clibran's Exhibition. The yield was just over 2,000lb. Another 1,000 onions were planted on a piece of ground at the same time, but no Terrafumite was used. During May, June and July they were sprayed five times with paraffin emulsion, but despite all this the crop was a failure owing to maggot. By the first week in August whole rows of plants were riddled with maggots, and the few survivors succumbed to mildew within the month. This year I had 500 onions planted to form a plot, treated the ground with Terrafumite, and at the time of writing I have five blanks owing to maggots. In the evening scores of flies could be seen on the tips of the plants and plenty of eggs could be found, so to make sure I sent a boy through the plot to sprinkle Terrafumite between the rows and hoe it in. I think I can attribute my success to Terrafumite.—F. C. KING, *Levens Hall.*

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NOTES OF THE WEEK

REMOVING WALLFLOWERS TO FINAL QUARTERS.

IT is a matter for surprise, that, after pricking out wallflowers and growing them on during summer, more care is not exercised in getting them into their final quarters in autumn. One sometimes hears the complaint, "we lost so many of our wallflowers last winter," that would almost lead one to imagine they were not hardy, did we not know that the blame lay at the door of the grower, because of careless shifting. In many instances we know, soil is loosely forked, and plants drawn out to be planted elsewhere instead of each plant being treated individually, and taken up with a ball of soil. Such removal takes up time, and is more trouble, but it brings its own reward in the spring. To disturb the roots as little as possible in October should be the aim of the grower, as, if this is carried out, little or no loss ensues, be the winter what it may. I write from many years experience of these, the sweetest of spring flowering plants.—W. LINDERS LEA.

SOME FORMS OF RHODODENDRON DECORUM.

WHEN discussing R. decorum Mr. E. H. Wilson describes it as one of, if not the most widely distributed of Chinese rhododendrons. It is not surprising, therefore, to find that there are many and varied forms, or varieties, of this species continually appearing among the rhododendrons raised from seeds obtained by several collectors, from Père Delavay down to the present day.

Not only do the plants vary in habit, foliage and flower, but there is considerable variation in the degree of hardiness, due, no doubt, to the different districts and altitudes from which the seeds were obtained. One very noticeable trouble is the large number of flower buds of R. decorum destroyed or ruined by frost during the winter. This is not very apparent at first, but when the buds should commence to push in spring they turn brown and fall off at the slightest touch.

Among these numerous forms of R. decorum we thus have a prolific field for the selection of not only the best in habit and floral features, but also the bushes best able to withstand the varied changes of our British climate in winter.

Some of the most distinct forms have been given varietal and even specific names. Among these is R. serotinum, which was given an award of merit when exhibited by the Director of Kew at the meeting of the Royal Horticultural Society on August 11th. The flower trusses were cut from one of the original plants raised from seeds collected by Père Delavay on Mount Tsong-chan, Yunnan, at 6,700ft. elevation in 1887. This very well known French missionary sent the seeds to the Jardin des Plantes, Paris, from where several seedlings were obtained for Kew in 1889. It is worth noting here that Père Delavay at the same time was the first collector to send home seeds of two of the most distinct and useful flowering shrubs among the Chinese rhododendrons, R. racemosum and R. yunnanense.

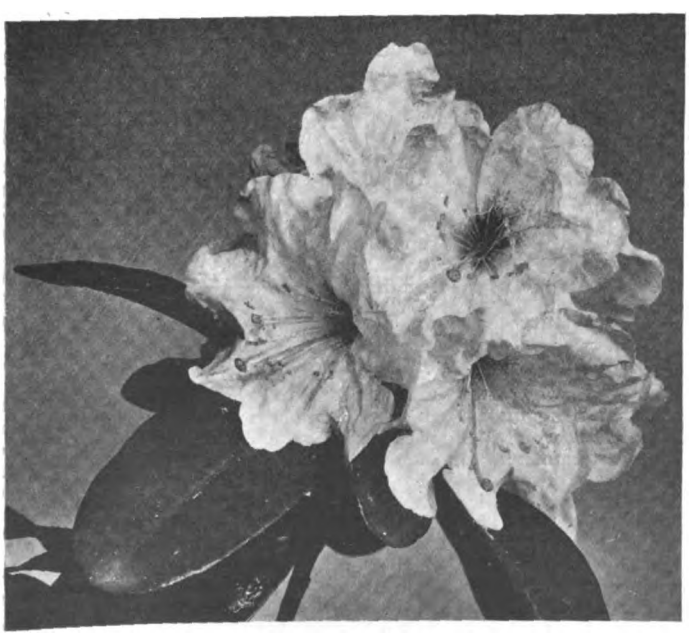
R. serotinum is a loosely branched shrub, 15ft. to 18ft. in height, no doubt more with age. The leaves are oblong lanceolate, up to about 6ins. long and 2¾ins. wide, glabrous, dull green above, glaucous beneath. The flowers are white, daintily crimped, with a conspicuous red-brown stain in the throat, a seven-lobed, flattish bloom, the largest 4ins. across, borne six to eight in a loose truss, and pleasantly fragrant. The name "serotinum" meaning autumnal, is very appropriate, for the season of flowering extends from July to September or October.

R. auriculatum.—This is one of the most distinct and interesting of the many Chinese rhododendrons added to our gardens during the last twenty-five years. The truss which was exhibited at the Royal Horticultural Society's Show on August 11th was from one of the original seedlings, now a robust bush 13ft. or 14ft. high, and as much in diameter, bearing this year upwards of fifty trusses of flowers. In a wild state Mr. Wilson found small trees or huge bushes up to 30ft. in height. The oblong leathery leaves are notably large, on vigorous seedlings 1ft. or even more being not unusual, and 4ins. to 5ins. wide, conspicuously hairy on the leaf-blade, with bristly stalks. The white flowers are funnel-shaped, 3½ins. to 4ins. across, five to eight borne in a loose truss, the corolla seven-lobed, the flower stalks glandular hairy.

R. auriculatum is very distinct in several particulars. There is no sign of the new season's growth beginning until July is well advanced. The majority of the flowers are borne on the lower and least exposed growths during August, not as is usual with most plants on the most vigorous shoots in the best placed positions.

The plant of R. auriculatum which is the subject of this note, has deliciously fragrant blossoms, but this pleasing feature is not apparently common to all the plants of this species.

Flowering late in the season, both rhododendrons should be planted in positions sheltered from the mid-day sun, with liberal mulching material to keep the surface soil cool and moist.—A. O.



R. SEROTINUM, A CHOICE LATE-FLOWERING SPECIES.

LILIUM GIGANTEUM IN SEMI SHADE.

THE accompanying photograph illustrates the noble effect secured by the massed planting of Lilium giganteum in a sheltered corner of the wild garden. It has proved itself to be quite hardy, and at the beginning of July it produces its racemes of from six to twelve funnel-shaped white flowers, tinged with green on the outside and with purple in the throat. When fully expanded they measure 1in. round the base and from 5ins. to 6ins. at the tip, the length also being from 5ins. to 6ins. The broad leaves often attain a length of from 1ft. to 1½ft. on a petiole 1ft. or more long. They are from 5ins. to 6ins. apart at the base of the stem, gradually diminishing in length and getting closer together until those beneath the raceme are not more than 3ins. or 4ins. long. The stem, which attains a height of from 6ft. to 10ft., is erect, measuring 2ins. or 2½ins. in diameter at the base. The requirements of this giant member of the lily family are not so exacting as one would imagine. Providing protection from high winds is supplied, any light, well drained soil of a good depth will be found suitable. The bulbs should be planted at the end of July, or immediately after flowering should a new bed be required, with their crowns just below the surface of the soil, say, from 6ins. to 8ins. deep. Little other attention will be found necessary beyond a mulching of rotten manure and a liberal supply of water given as soon as the buds appear.—A READER.

L. GIGANTEUM LOOKS WELL IN THE MASS.

HONESTY.

THE season has been very good, in spite of the drought, for this old-fashioned flower, with its quaint name.

After blooming profusely for weeks, the seed has ripened dry and clean. It seems a pity that this plant is not more generally known and cultivated, if only on account of the beautiful centre piece of its seed vessel. This, when the two outer portions and seeds are removed, appears with the sheen of white satin, of gossamer texture and fairy lightness, and lasts a long time.

Mixed with berries, flowers or foliage, or alone in coloured or iridescent glass vases, it is very effective, and, as it grows in clusters on short branches from the main stem, can be used with advantage in the decoration at

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weddings or harvest festivals. The flowers are also very pretty, and large masses of the plant in bloom, both plain and variegated, growing on a bank, is a charming sight in the spring sunshine. It grows to a height of about three feet and flowers the second year. The seed should be gathered unsoiled, if possible, but in a wet season this is a difficult matter.

A bowl of honeysuckle, flowers and berries, sprays of the small red garden fuchsia and silvery honesty, is a combination of sweetness and beauty.—(Mrs.) A. S. COOPER.

FREESIAS BY VARIETY.

FREESIAS are ever favourites, but many growers only procure them in a mixed selection and miss the charm of having them in choice named varieties. Refracta alba is the popular white, but Purity is distinctly better, the blossom being larger, fuller and more lasting. Excelsior is a charming cream, shaded apricot; the flowers of this vigorous variety are larger and better than any of the other kinds we know. Chapmanii is a glorious orange yellow, the flowers being again large and of good substance. Passing to the shades of blue one cannot forget to mention Heavenly Blue, a soft, sky blue with blotch of deep golden yellow. Of lavenders and mauves there are Amethyst, a very pale tint, and Sweet Lavender; both should be introduced because of their colouring which is very attractive. The reds, so difficult to describe, but so dainty and pretty, would include Rosa Bonheur, a bright, robust variety with large rose flowers; La Charmante, a delightful rose, shaded apricot; Robinetta, a bright red; and Salmonetta, a salmon pink. Sunset, a new variety, is distinct, the flowers being almost brown. Of course, there are other kinds, but we speak only of those we grow. Amateurs need not be overwhelmed with their number; even six bulbs in a pot will give a wonderful crop of blossom and since each spike bears many flowers, the whole will become a crown of exquisite colouring.—CLYDESDALE.

ASTER THOMSONI.

EVEN with the presence of an almost bewildering array of asters, or Michaelmas daisies, which have been produced by raisers of new varieties, many of the original species yet find high favour among growers of hardy flowers. Most of them are easy to cultivate, but a few baffle some growers, if not to grow, at least to increase readily. Of the latter category is Aster Thomsoni, which is a native of the high lands of Kashmir and Nepal. It is a very beautiful species, which is not over difficult to cultivate in light soil, and I was greatly delighted to observe a very fine specimen growing in the charming garden of Captain Stewart, Shambellie, Newabbey, the other day. There are two forms, and it was the dwarfer and better of the two—A. T. nana—which was at Shambellie. The late Mr. Farrer did not err on the side of extravagant praise when he said that A. Thomsoni was "one of the most beautiful of all." The typical species is said to be about 3ft. high, but this form is very rarely met with in British gardens, that usually seen being A. Thomsoni nana, which is generally little more than 18ins. or 24ins. in height. It is exceedingly charming, and gives an abundance of its lilac blue flowers, which begin in summer and are produced for some time singly on stems clad with grey-green leaves toothed, rather oval in form and pointed. The question of propagation is one which has exercised many. Farrer says that it is "deplorably difficult of increase, as it neither runs nor seeds nor forms a clump." On the other hand, Nicholson's "Dictionary of Gardening" informs us that it is "increased by seeds or cuttings; it should not be divided." The latter quotation would infer that it does produce seeds, but I have not seen them, although they are offered for sale. But the plant can be divided when it forms a clump, as it certainly does, though Mr. Farrer said it did not. I have had a clump myself, and the fine plant at Shambellie can by no means be called anything but a "clump," and a good one at that. I believe that spring, when it is making growth, is the best time for division. A sunny position in well drained, rather light soil should be given to this most attractive Starwort. Under the name of A. Frikarti new asters said to be chance seedlings of A. Thomsoni are among the novelties of this autumn's lists.—S. ARNOTT.

CAMPANULA KEWENSIS.

AMONG the numerous pretty and choice harebells suitable for the rock garden C. kewensis occupies a high position. It blooms during June and July, and is a hybrid between C. excisa and C. arvatica, having originated in the rock garden at Kew. The plant is a good grower, and in stony soil it has spread rapidly, covering several square feet in three years. It is fairly intermediate between its parents, and bears a large number of open flowers similar to C. arvatica. The colour is a fine violet-purple, and the blooms are produced on wiry stems about 4ins. high.

This season the plant has been exceptionally fine, and has fully upheld the high reputation it has so deservedly gained. It is readily increased by division, and in congenial surroundings it will soon make progress. Certainly wherever alpines are grown this delightful little subject should be represented by one or more plants.—T. W. B.

NEPETA MUSSINI.

FEW plants suitable for growing in the rock garden have had a greater call upon them during the last few years than Mussin's catmint. It is a subject one meets with everywhere, flowering well in a period of drought and, once established, will go for years without need for disturbance, unless it be to restrict its boundaries. I find that the end of August is the best time to propagate it from cuttings, as then there are plenty of shoots available from the base of old plants. These can be dibbled in the ground, assisted with a little sand, and soon take root. It is hardly necessary to protect young ones during winter except during long spells of frost, as by October they are usually well established and able to take care of themselves. If plants are to be moved, it is best to do so in March and not in late autumn. For edging to garden paths Nepeta Mussini is much used to-day, and cuttings inserted where they are required to remain if taken in August or early September do not often fail.—W. LINDERS LEA.

CROCUS TOMASINIANUS.

MANY delightful flowers offer themselves to us among the species of crocus, as distinct from the glorious "Dutch" varieties of C. vernus, which make our gardens glow in the spring with bright colours. I venture to bring before your readers the delightful C. Tomasinianus, a truly delectable spring-flowering species, which does not rest its claims upon size, but upon its great beauty and ease of cultivation. Planted in the grass, in the rock garden or border, it gives us its charming pale sapphire-lavender flowers in March, and, as it seeds freely and self-sown seedlings come up readily, it will, in time, afford us many pretty features, devoid of stiffness and appealing to us because of the natural manner in which these self-sown plants scatter themselves about. It is a native of Servia and Dalmatia, and bulbs, or rather "corms," can be procured at a cheap rate in autumn and planted at the same time as other crocuses, and at a depth of about 2ins. in light soil in a sunny place. The flowers, though not large, are extremely pretty and the sapphire-lavender of the type is varied by a number of varieties which have been separated, but which generally come among the self-sown seedlings. We have, for example, the clear lilac C. T. atropurpureus, and the light lilac C. T. pallidus, as well as white, amethyst and other colour tones. C. Tomasinianus is one of the freest and best of the spring-flowering species of crocus in commerce and can be confidently recommended for planting and leaving to look after itself.—DUMFRIES.

MIMULUS CUPREUS.

MIMULUS CUPREUS is a well known plant which has proved its worth in the garden for a good many years. I have here what everyone who sees it admires and comments upon as a very fine variety or, possibly, a hybrid of M. cupreus with another species. I saw it in a garden at Wanlockhead, reputed to be the highest inhabited village in Scotland, and through the kindness of Mr. Watson, the owner of the garden, a true flower-lover, became the happy possessor of a small plant from his clump. Planted in a shady, rather damp border here, this has grown apace, and, although some pieces have been taken off to plant in other parts of the garden, this small plant has become a mass fully 5½ft. in length by 4ft. across. It is a gorgeous sight, and in this brilliant weather, when the sun is upon it in the early part of the day, it seems to be glowing with "fervent heat." When the sun is off it is more restful. We want more hardy mimuli which will endure in the garden for years and spread into masses like this.—S. A.

SIDALCEAS.

SOME very beautiful varieties of sidalceas have been raised and distributed within the last few years, and a sowing made from seed saved from any good strain can be relied upon to produce good results. They are most useful plants for the hardy flower border where warm colours are desired, and it is now possible to have them in all tones of light and deep pink and mauve. In height they range from 2ft. to 5ft., making it possible for them to be so disposed in the border as to enable full advantage to be taken of their effective spikes of bloom.

Among the named varieties that have come under my notice recently the following is a quartette of really outstanding merit:

S. Listeri.—This is a charming variety bearing flowers of palest blush colour. The stems are strong and erect, and the foliage is most distinctive and semi-glaucous. Plants of this variety when in flower are about 2–2½ft. in height.

S. Sussex Beauty.—The flowers of this variety are of somewhat stronger colour than the foregoing. It is a most graceful and distinguished-looking plant, with flowering stems some 4ft. in height.

S. Mauve Queen.—A really magnificent sort, the flowering stems of which are 5ft. tall and upwards. The flowers are of a pleasing light mauve colour. Grown in clumps of half a dozen plants, this variety is majestic in appearance and a worthy addition to any garden.

S. Pink Pearl.—As the name indicates, this is a variety the flowers of which are pink in colour. It is a very pleasing tone of pink, and can be regarded as one of the very best sorts of this particular colour. It grows about 3ft. tall.

All the above sorts are most distinctive in appearance even when not in flower, the foliage being very handsome, and in the ordinary way there is no need to resort to staking and tying when the plants are in flower.—HOWARD H. CRANE.

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SIMPLE GARDENING

POTTING FREESIAS, CHIONODOXAS AND SCILLAS.

THE fragrant flowers of freesias are produced from very tiny corms, and are, in consequence, suitable for growing in small pots or for massing in large ones, pans or bowls. Some really charming colours are now available, a few of them being Jubilee (white, tinted pink; this is suitable for small pots or low bowls), Mouette (another white, tinged pink), Treasure (a large yellow), Merry Widow (dwarf lavender), Conquest (rose pink, beautiful in masses), Buttercup (pale primrose, early) and Golden King (late). A good general compost is formed of the following: Loam, 2 parts, leaf-soil 1 part, peat 1 part, and coarse clean grit to make all porous. Manures are not needed. Very frequently one sees freesia plants on stages and greenhouse shelves with their stems and main leaves toppling over the sides of the pots; this is the result of bad potting and wrong treatment after the growth begins.

Usually, the small bulbs are planted in the soil in the pots with the tops visible, and the new growths are weakly from the start. I prefer to bury the bulbs 1in. below the surface; the new stems grow just the same, but come through the soil much stronger. Also, it is wise to grade the bulbs and to plant the tiny ones in separate pots, not mixing them with the larger-flowering specimens. Do not re-pot, but plant just the number of bulbs in each pot, and not more than can find room to grow. When potted, water, allow the pots to drain, plunge under ashes or sand (which is better), and treat similarly to other kinds of bulbs so plunged. The other kinds of bulbs may be treated in a similar way, but look best in bowls and pans.

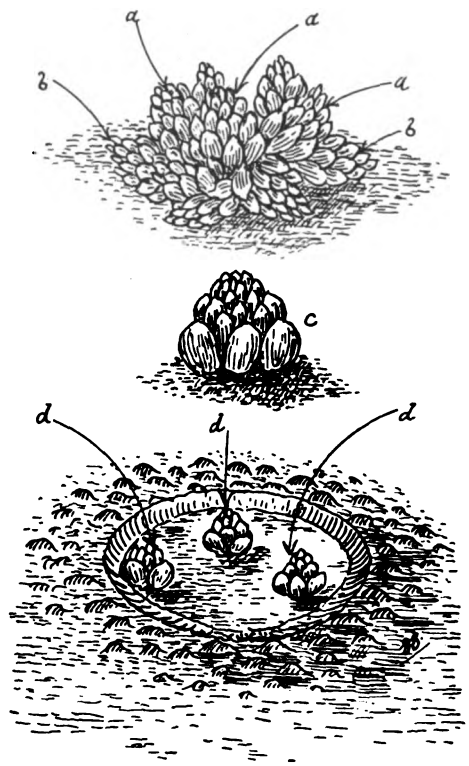
BLANCHING ENDIVE, CELERY AND LEEKS.

These three kinds of plants are not much appreciated unless they are blanched and tender. The harsh taste of the green, unblanched specimens is absent when they are properly treated at the right time. Unblanched lettuce can be eaten, and frequently is, without comment; but endive must be rendered tender and palatable. At this season lettuces soon decay, and often more so as the autumn dampness comes, while the endive plants thrive and resist open dampness and rather severe frosts. Probably many readers have batches of endive in their gardens now, which may be ruined if not properly treated. The plan of laying on slates, tiles or boards is generally adopted, and with disastrous results, as the hearts, instead of blanching, rot away. This condition results from confining the moisture. Exclude light but not air, then blanching will result and leaves will not be lost. I find the best way to secure this condition is to lay down some pea-sticks, flatwise on the plants, and then some bags or mats with boards or bricks to keep all in position. Not only the inner but the outside leaves too will blanch beautifully.

With regard to celery and leeks, it is very important that the leaves be kept upright and all foreign matter excluded from the centres of the plants, or decay may set in when the matter becomes moist. Do not rely too much upon paper bands, but mix together sand and fine ashes, placing these next to the plant and ordinary garden soil outside it, blanching as the plants grow and feed at the same time. Slugs must be excluded.

PLANTING LILIUM CANDIDUM.

In many cottage gardens this charming lily may be seen in robust health and flowering freely. In other gardens one sees the plants just existing in a distressed condition. In the same garden the plants will do well in one quarter and fail in another. Generally, the bulbs



do not like being disturbed much and, unless it is absolutely necessary to lift and replant those that are succeeding, it is well to leave them untouched. But many cultivators wish to plant bulbs who have not as yet grown this lily. The soil should be well drained, deeply dug and well rotted manure mixed with it, and, if quite convenient, this work should be done several weeks prior to the date of planting. This cannot be done in every case, so I advise the cultivator to place 3ins. of unmanured compost immediately below the bulbs and to bury the latter about 4ins. deep with open soil not containing any manure. Search all new soil for wireworms, as these are destructive to the plants. Be sure that the soil is well drained and that old, used composts are not employed again. If old clumps must be lifted and the bulbs separated, grade the latter, using the best, *a*, *a*, *a*, replant them in the same place and the weaker ones, *b*, *b*, in another. The bulb, *c*, is a good one, and such should be planted as shown at *d*, *d*, *d*, allowing a space of 9ins. between the bulbs. Mark all places with labels or neat sticks. Do not expose bulbs one minute longer to the air than is necessary.

WALL AND PILLAR PLANTS.

When the plants are flowering or bearing a wealth of young leaves, brightly coloured and fresh, they are cared for, trained, cleaned, fed and watered. But at this season of the year we sometimes neglect the plants very much, and then they quickly become an entangled mass of shoots, especially those that are of a true climbing or entwining nature. Roses should be the first on the list to receive full attention now; the shoots that are to bear the harvest of blossom next year should be freed of all others not required at an early date, so that those retained may ripen properly. Remove the older branches, cutting them off near the base, and retain the younger ones their full length, then a useless late growth of tiny shoots will not occur.

The time to remove the unripe tips of the young shoots is in the spring—at the end of February, when all danger of severe frost is past. The different sections of clematis should be dealt with according to their special requirements, but undue delay should be avoided. Straggling shoots of ivy may be cut now, but a general cutting should take place next spring. Honeysuckle plants frequently become top-heavy; all specimens found in such condition now ought to be judiciously thinned out. These hints apply also to jasmines. Plants of the vine family should be examined now with a view to pruning late in November.

GARDEN PATHS.

Paths that dry quickly after a heavy shower of rain are pleasant to walk on; those that retain water on the surface for a long time afterwards show plainly that the drainage is, mainly, at fault, and this fault may be accounted for, generally, in two ways, ground naturally low-lying or badly constructed paths where surface drainage is normal. Some paths, not satisfactory now, may be put right by simply turning over the surface, raking and rolling it. Others should be turned entirely, taking care to retain the drainage portion in the bottom. All coarse, tap-rooted weeds should be extracted when the path material is turned; this care should be taken when new paths are constructed. If crazy paths are preferred without plants growing on them, after laying a good base of concrete, 1 part cement and 4 parts sand, lay pure cement 1in. thick on the surface, using laths of that depth to form the divisions when actually laying the cement, but withdrawing them before the cement sets and as the work proceeds. If plants are to be grown, leave wider spaces to contain a small quantity of soil, and drop little dabs of coarse, sifted sand on the cement before the latter dries, it will then have the appearance of a stone surface more roughly hewn. G. G.

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INSECTS, ALIAS BUGS

SO much is written in the horticultural Press about garden pests, and so little about pests which attack humans, that I think it only fair to give them a short note. Gardeners swear and curse in private over aphis and slugs and other creeping, crawling and flying insects which damage their plants: they also write to us about them with great bitterness. Presumably, every gardener has a skin which is capable of irritation. He may scratch and swear in private, but never a chirp comes from him in public, which gives the attacker an unfair advantage.

I am no entomologist; on the other hand, I have a tender skin, and so consider myself an expert in insect bites. The Americans have a useful name for insects: they call them "bugs," presumably because they are suspicious of all insects until they have proved them to be harmless. This is a useful maxim and one which should be followed through life. Personally, I divide all bugs into two classes—those which are capable of biting me and those which are not. With the exception of the bee and the ant, one of my main objects is to slay the former before they can perforate my skin.

Of flying bugs the sorest bite is that of the wasp, the most irritable the mosquito, and the most annoying the midge. The wasp is comparatively large and, unless annoyed, rarely attacks you; therefore the obvious thing to do is to slay it when you have it cornered and to leave it severely alone when the chances are against its successful execution. If you are bitten, Scrubbs ammonia is the best salve, or, if a very bad sting, a hot compress. In THE GARDEN of June 27th, 1925, there was an article on Mosquito Control in Gardens, where the author sets out the various form of mosquito. The anopheles, one of the malaria mosquitos, can be recognised by the fact that when he squats his nether quarters point towards you. There are, however, many other kinds of biting gnats, and the best way is to kill anything that pings. I have had considerable experience of mosquitos in the tropics and elsewhere, and I have never found any of the so-called preventive lotions very efficacious. The main constituent of these lotions is usually either oil of lemon grass or oil of eucalyptus. Probably ordinary eucalyptus, such as is used for colds in the head, is as good as anything. As a cure for the bite, ammonia is good, but iodine is much better and is really a sure cure, provided that it is applied as soon as the bite is felt. I have never known a mosquito bite bother me an hour after applying iodine.

The midge is apparently universal, and I do not know if they are worse in the hills in Burma or at Loch Maree on the west coast of Scotland. A mosquito may be solitary, but if there is one midge there are always thousands. They are so small that it is impossible to flap them away. In really bad midge areas you can wear a fine veil, but it is a hot and stuffy contraption. A midge bite does not last long, but while it does it is both sore and painful. When they are bad it is impossible to anoint every bite with iodine if you pay any attention to your appearance, and no preventative except a coating of tar keeps them off if they are really voracious. Extract of witch hazel helps to remove the irritation.

I have kept what, to my mind, is the worst of all human pests to the end, an atrocious beast of which I have never learnt its proper name, but which is known in various parts of the country as the gooseberry bug, the berry bug, the bracken bug and the harvest bug. Luckily, it only exists in certain districts; unluckily, my garden is in the middle of one of them. Apparently, it is a red mite which is only just visible to the naked eye against a dark cloth, so small is it. Kind people say that it does not try to harm you, but, finding itself in a strange environment on your clothes, it burrows in order to escape. At any rate, it burrows under your skin and, dying there, sets up a bite like a flea's but twice as irritable. It is a curious fact that it always attacks you when your clothes are tight. If you wear a belt, your middle will have a row of spots, and they love the flesh behind sock-suspenders. The obvious thing is to take off your sock-suspenders and loosen everything all round. A good preventive is to rub yourself all over with liquid Sanitas before you go out into the garden: it is quite harmless to the skin. Iodine is also a cure for this bite, and in a lesser degree ammonia. One other tip: if you must scratch, use the back of the nails and you do not tear the skin.

Gardeners are a long-suffering race. They have irritation of the mind from insects which attack plants, and irritation of the body from bugs which attack them. E. H. M. C.

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

NOTES FROM FLORAIRE, by H. Correvon.

MUSCARI—II, by Rev. Joseph Jacob.

FOLIAGE PLANTS FOR GREENHOUSE AND CONSERVATORY, by A. Coutts.

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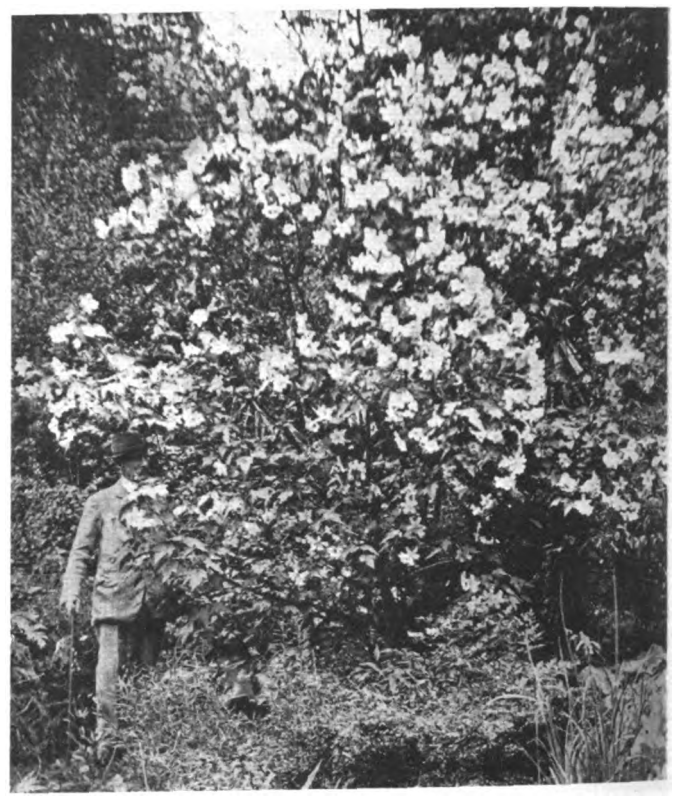
GARDENING in the WEST of SCOTLAND

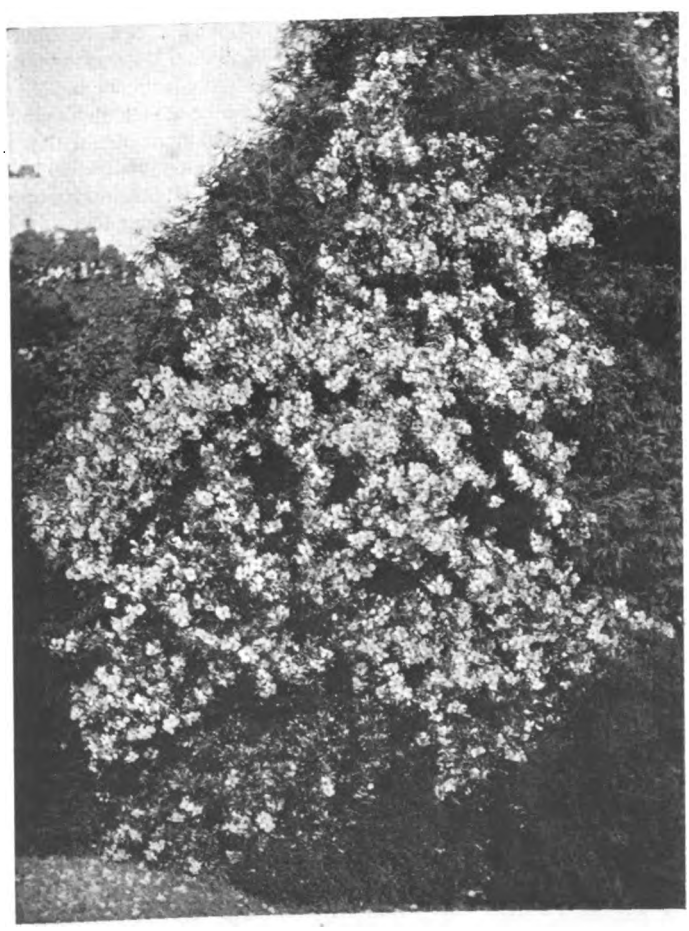
BY SIR HERBERT MAXWELL, BT.

WE used to be instructed by writers on horticulture to esteem the more northerly parts of the British Isles as less favourable for the cultivation of half-hardy exotics than the southern counties of England. We in Scotland, for example, were wont to listen with awe, not unmixed with envy, to descriptions of what had been achieved in some gardens of Cornwall, and very few of us attempted to emulate those results until we realised, not many years ago, that British climate varies far more according to longitude than latitude, and that all along the west coast as far north as Ross-shire, wherever protection from searching sea winds can be had, many shrubs and herbs flourish vigorously which it would be futile to plant out in Norfolk or Warwickshire.

It is true that there is stronger sunshine, and more of it, on the south coast of England than there is, say, in Argyll, and that sun-loving plants from South Africa, Asia Minor and Australia are more likely to succeed there than under the cloudier skies of the north-west; but, on the other hand, there are many exotics, especially from Chile and from high altitudes in Asia, that relish plenty of moisture and shrink from strong, prolonged sunshine. For instance, I have never happened to see a decent bush of Desfontainea spinosa in Cornwall. Quite possibly I may have missed or forgotten good ones, although the owner of one of the largest collections in that delightful county tells me that he has planted it repeatedly without success. Seventeen years ago I measured a specimen of Desfontainea at Stonefield in Argyll, growing near the foot of Eucalyptus Gunni 80ft. high. This bush was 14ft. high and 75ft. in circumference, notwithstanding that one side thereof had been ruthlessly cut back to clear a gravel path. There is a considerably larger specimen at Corswall in Wigtownshire, but its environment prevents accurate measurement being taken.



ABUTILON VITIFOLIUM AT MONREITH.



A FINE PLANT OF EUCRYPHIA PINNATIFOLIA.

It is, however, about Scottish facilities for growing Asiatic rhododendrons that we have been so slow to learn. We neglected the few examples that have long been patent, such as Castle Kennedy, where R. arboreum, niveum, barbatum, fulgens, campanulatum, etc., raised from seed provided by Sir Joseph Hooker seventy years ago have grown into magnificent specimens; or Stonefield, where Dr. Campbell, founder of the sanatorium at Darjeeling, planted the noble R. Falconeri and grande to be seen there at this day.

"In Scotland," wrote Mr. J. G. Millais, "where conditions on the west coast are, I think, even better than in Cornwall, there are but few gardens devoted to rhododendrons. . . . Western Argyll and Dumbartonshire should be one beautiful garden, as most moisture-loving shrubs find a congenial home there. . . . At Ardarroch (Garelochhead) there are plants of R. arboreum up to 24ft. in height, and R. campanulatum seeds itself there as freely as in the Himalayas." ("Rhododendrons," pages 70, 71.)

We Scottish amateurs have, indeed ourselves to blame for not having discovered the capabilities of our western climate long ago. Now that we have done so, we can start on even terms with our south country friends in dealing with the vast number of new species of rhododendron which have been introduced since the beginning of the present century. Abundant rainfall and a humid atmosphere in summer are all in favour of the genus; indeed, we have but two adverse conditions to contend with—violent winds, especially from the north-west, and liability to late spring frost, so fatal to the precocious growth induced in some species by high winter temperature.

The besetting sin of flower gardening being sameness, it should be the aim of every amateur to give his borders and shrubland a character distinctive of the capabilities of his soil and climate. West Country gardeners would do well to give more attention to plants from Chile, for there is much similarity in the climate of that country south of Valdivia to that of our west coast. Mention has been made above of Desfontainea; to name some other treasures from that distant land, there are several huge specimens of Eucryphia pinnatifolia

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at Poltalloch in Argyll; and at Castle Kennedy in Wigtownshire E. cordifolia 25ft. high is a formidable rival to the famous growths of this species at Nymans. The late Mr. R. Birkbeck at Kinloch-Hourn and the late Mr. Osgood Mackenzie at Poolewe had luxuriant growth of tricuspidaria, mitraria, embothrium, Abutilon vitifolium and (against a wall) megapotamicum, several species of fuchsia, Solanum crispum and jasminoides, Lomatia ferruginea and escallonia; and there are hundreds of gardens between those northerly stations and the Mull of Galloway where these fine plants and many others from the southern temperate zone would flourish freely. It vexes one to see ground admirably suited for them stuffed with common nursery stock.

OLEARIA MACRODONTA, ONE OF THE FINEST OF THE GENUS.

Many fine trees and shrubs make themselves as much at home on any part of our west coast as in their native New Zealand, especially if they have been brought from the South Island, and most of them have the estimable faculty of resisting wind—nay, really rejoicing in plenty of it. I need not add anything to the notes on olearia species submitted in THE GARDEN of July 25th; but in another genus of Compositæ—senecio—there are several fine species that takes as kindly to our soil and climate as does their poor relation, our native groundsel. S. Huntii, which may grow 20ft. high, and S. Greyii of humbler stature, both sheet themselves with panicles of bright yellow flowers in July. S. Hectori is less hardy, but stands moderate winter cold very well. It is well worthy of a sheltered place, both for its white-rayed flowers and its great bright green leaves, which have the peculiarity of being pinnate at the base of the broad blade. Plagianthus betulinus and P. (Gaya) Lyallii present a lovely appearance in July when sheeted with milk white bloom, coming after the several species and varieties of leptospermum.

If New Zealand had sent us nothing but the "Red Kowhai" (Clianthus puniceus) we could have asked for nothing finer than that gorgeous shrub. Although it comes from the North Island, where the late Mr. Cheeseman described it as nearly extinct in a wild state, the shelter of a wall carries it safely through all but the more severe of our west country winters, and if hard frost in March should destroy the early bloom, there are always plenty of flower-buds to renew the display later. A fresh stock may be maintained from the seeds, which are freely produced. Last, but not least, let not the so-called "New Zealand cabbage" (Cordyline australis) be neglected. It may grow 40ft. high, and avenues thereof form one of the most notable features in the great collection at Logan.

I have enumerated but a small fraction of the exotics at our disposal, but the list may serve as a stimulus to encourage enthusiasts in western Scotland to take fuller advantage of their climate by following the spirited lead set by Cornish gardeners.

NOTES OF THE WEEK

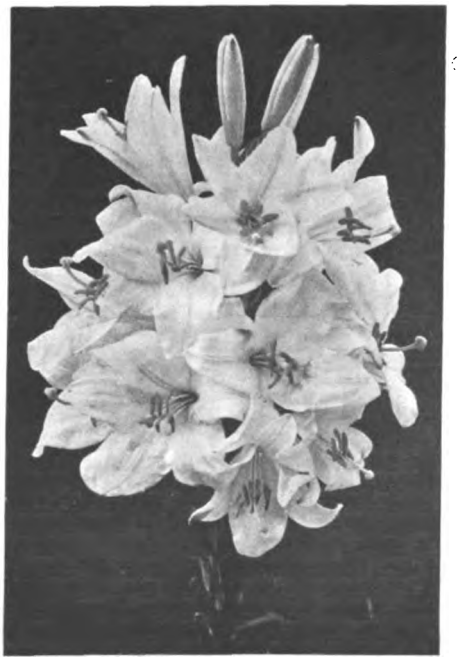
EUCRYPHIA PINNATIFOLIA.

I HAVE lately examined a number of bushes of various sizes of Eucryphia pinnatifolia in a friend's garden and can bear out the facts of the note published in THE GARDEN of January 19th, 1924. This note was by Mr. W. Slinger, of the Donard Nursery Company, who has had as much experience as anybody with this fascinating plant. In it he pointed out that there was various forms of E. pinnatifolia, some of which were widely divergent in growth, some forms making only stunted growths, while others grow over 12ins. every year.

The bushes in my friend's garden show this variation of growth very clearly, but they also show another fact, that bushes with a leader grow better than those without one. I believe it is a fact that gardenia cuttings which are taken from a leader grow far faster than those taken from a cutting off a horizontal branch. Perhaps the same factor applies in the case of E. pinnatifolia. It would be interesting to know if any reader of THE GARDEN, who has had experience in propagating this plant, can tell us whether this is so or not.—E. C.

LILIUM CANDIDUM: ITS LIKES AND DISLIKES.

IT is, I think, generally agreed that among lilies, candidum is the most popular of all for the garden, and further, when bulbs have been planted at the right time—which is immediately the flowering stalk has died down and before new growth emanates—they stand a much better chance of getting established quicker, than when, as is sometimes the case, planting is deferred until autumn. Again, it is recognised by all who have to do with this peerless lily, that once they have made themselves at home in the garden, it is a mistake to meddle with them. These facts are, I venture to say, fairly well known, but I do not think that it is sufficiently appreciated how vital a sunny position is to the well-being of the bulbs. A leaf out of the book of one's own experience will confirm this. A clump of candidum in my garden had never failed to bloom for many years until one summer it became necessary to extend a pergola over the border in which the lilies were quartered. A wichuraiana rose soon enveloped the structure, and resulted in loss of light to the lilies below, so much so that for a couple of seasons they bloomed scarcely at all. Eventually the addition to the pergola was taken down, sun and air reached the bulbs as previously, and full blooming power was re-established. If ever a lily showed its resentment at being shorn of its "place in the sun," that lily did!—W. LINDERS LEA.



A FINE HEAD OF LILIUM CANDIDUM.

GALEGA HARTLANDII.

THE late Mr. W. Baylor Hartland of Cork was responsible for the introduction of the goat's rue, which bears his name, and I have still in my garden a plant which he very kindly sent me at the time it was distributed. It is said to be a form of Galega flexuosa, and the character of the stems would appear to justify this statement. Its main feature in the early spring is that it affords us a good plant with warm, variegated foliage. Later in the season the variegation is practically absent, but in late summer and autumn the

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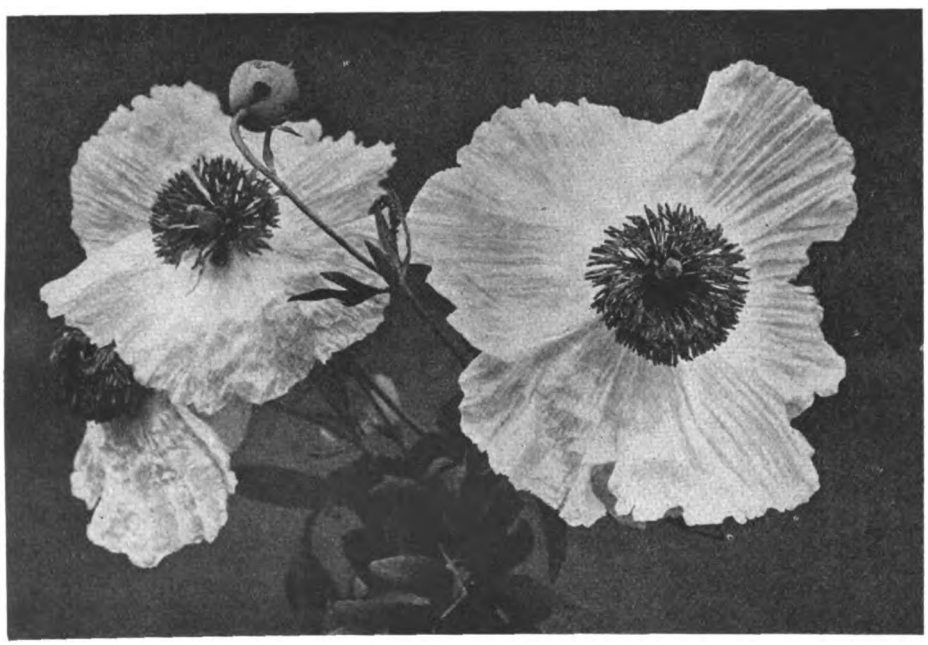
plant is laden with its sprays of pleasing lilac-purple flowers of the arrangement and form so characteristic of the galegas. It varies in height but in a dry border here it is at present about 5ft. high. I have had it less and also more, but from 4ft. to 5ft. may, I think, be taken as its normal stature. As a border plant G. Hartlandii is excellent, absolutely hardy and apparently satisfied with almost any soil likely to be included in a garden. It has been said that it does not come true from seeds, so far as the variegation is concerned, but this is not absolutely correct, and I have had a good many self-sown seedlings as pure in their variegation as the parent. On the other hand, some plants had the ordinary green foliage of the typical G. flexuosa.—S. ARNOTT.

ROMNEYA COULTERI.

VERY different impressions seem to be abroad as to just what this plant looks like, although all are agreed as to the flowers and their resemblance—at a distance, at any rate—to poached eggs. The height, however, does differ, according to the time the plant has been established and the nature of the soil. If you have only seen dwarf specimens about 2ft. high, it should be remembered that it is possible to grow them 6ft. high, and as much through, with many-branched stems furnished with glaucous foliage and giant pure white satiny flowers with golden centres, produced from June to September.



TYPICAL BLOOMS OF ROMNEYA COULTERI.

Unfortunately, the plant is not a reliably hardy one and extra care has to be taken in preparing its home, if anything like justice is to be done to its capabilities. It does not seem to be a matter so much of cold as damp that proves injurious during the winter, and I have seen magnificent specimens growing in very cold parts of the country, where steps have been taken to guard against winter damp.

First of all, then, let us see to it that the position is a very sunny one, preferably facing due south and protected on the north and east by a belt of shrubs that will screen from cutting winds. The soil needs careful preparation and a deep pit should be taken out and filled with rich sandy loam. Do not stint the size of this hole—6ft. square and 4ft. deep is not at all excessive where a really fine specimen is to be gradually built up. It is a mistake to raise this bed higher than the surrounding ground, for the roots demand large supplies of water during the summer and especially appreciate liquid manure. Planting is work that demands considerable care, for it is of the highest importance that the roots should not be damaged in the slightest.

Propagation is usually effected by seeds sown in single pots as soon as ripe, and the small plants should be grown on in these for twelve months before planting out. When planting, simply take out a hole of sufficient size and depth to contain the plant, break the pot by a sharp blow from a hammer and take away the broken pieces, then fill in with soil and firm carefully. In this position the plant will spend its life, for it is impossible to transplant with any hope of success. The plants will come safely through all ordinary winters, but need a covering of litter or ashes during times of severe frosts. Many failures are experienced where the mistake is made of keeping on this covering permanently throughout the winter, instead of using only when occasion demands. Permanent covering encourages early growth, and this is, naturally, far more tender than if it had been uncovered all the while.

Where the seasons are poor and seeds do not set freely after flowering, an alternative method of reproduction is by taking root cuttings. Stem cuttings are extremely difficult, for, although they will remain fresh for a long period, they simply will not form roots. To procure root cuttings, carefully remove the soil from the surface until these are exposed, then cut off the roots with a sharp knife and insert the pieces about 3ins. long in very sandy soil over a gentle hotbed. This should be done early in the year. —H. W. C-W.

NEW FLOWERS.

THERE is a wide field, as regards new hardy and half-hardy flowers, for English horticulturists among the wild flora of Kenya Colony. There are many beautiful tropical flowers, too, but with them I do not intend to deal to-day. Some of our beautiful indigenous flowers have already been introduced and many more await an introduction.

The thunbergias are among our most prized possessions and thrive even in cold soils in England till the frosts cut them down. Several of these are climbers, one is a gorgeous golden orange, another the colour of the moon in eclipse, another pure gold with a purple centre. There is a deciduous bush variety, deep purple with a yellow throat, and a herbaceous plant with the most wonderful blue corola and also some pale yellow ones.

Some of the delphiniums have been sent home, but I have not heard yet what luck has resulted. One of them is a heavenly thing, pure white of the butterfly type. I shall never forget my first glimpse of it. There appeared to be acres and acres of it, as far as one could see, lovely spikes of butterfly-poised flowers standing above the short green grass. Another, with Liberty shades of blue and green, grows just beyond the Kikuyu forest. Many of the flowering stalks are 4ft. and 5ft. high, and below them grows a most fascinating coral-coloured styarium, and above them all a wonderful senecio. But to return to the delphiniums, there are others of wonderful shades of blue. There are also one or two aconites.

Our gladioli have perhaps received more attention than most of our wild flowers, and there are several varieties, of which I have four or five established in my garden now. I have only once found a pure yellow variety, of which I failed to get bulbs. A subsequent visit to the same spot revealed a maize-shamba and no sign of the beautiful yellow gladiolus. The crinums are perfectly wonderful, transplant easily, and improve considerably under cultivation. Their scent is as delicious as it is powerful, and a bed of crinums soon contradicts that absurd idea that African flowers have no scent. Another bulbous flower is the beautiful scarlet zephranthes. I have dug down more than 2ft. sometimes in search of its bulbs and this fact may be of interest to those who are trying it in England. Shallow planting is not likely to suit it.

Of wild clematises I have collected three. They are all white. One is very like the Traveller's Joy of the English hedgerows, another like a C. montana, and a third as big as a purple Jackmani with wonderful large waxy white flowers.

Succulent flowering plants or rock gardens abound and one of my happiest finds was a pure white mesembryanthemum. There are heaths and giant lobelias and groundsels on the higher slopes of Mt. Kenya, climbing begonias in the forests, balsams and powder blue salvias, and other things too numerous for the space of a brief article.

Some of the crotalarias are worthy of cultivation in their present state and I am sure would repay careful attention and possible crossing with other varieties. There is one asclepias that is more beautiful than any I have seen in cultivation at home and better than any of the varieties we have been able to import. Hibiscus, we have, of course, in great variety, and some that have been introduced to home horticulturists are doing extraordinarily well.

The geraniums are fascinating—I use the word in an unbotanical sense, I am afraid, and include pelargoniums. One of the most exquisite ones is Geranium aculatum, the most wonderful dusky ducks-egg green you can think of or imagine. Another is cherry colour and a third pure white. I have an interesting seedling, the parent plant is the dusky green and the pollen plant is the cherry variety and the seedling is deep cerise, with a hint of darker shading.

Polygonums abound in great variety, and among the rumex there is a very striking climber whose coral coloured festoons of flowers quickly cover any bush or building near. The lantanas are interesting, too. One has whorls of scarlet and yellow flowers and another shades of mauve, yet another white and green flowers, etc.

Of the many striking and beautiful flowers of the compositæ, the scrophulariaceæ, and the labiatæ, I hope I may be permitted to write another day.—LUCY LANGRIDGE.

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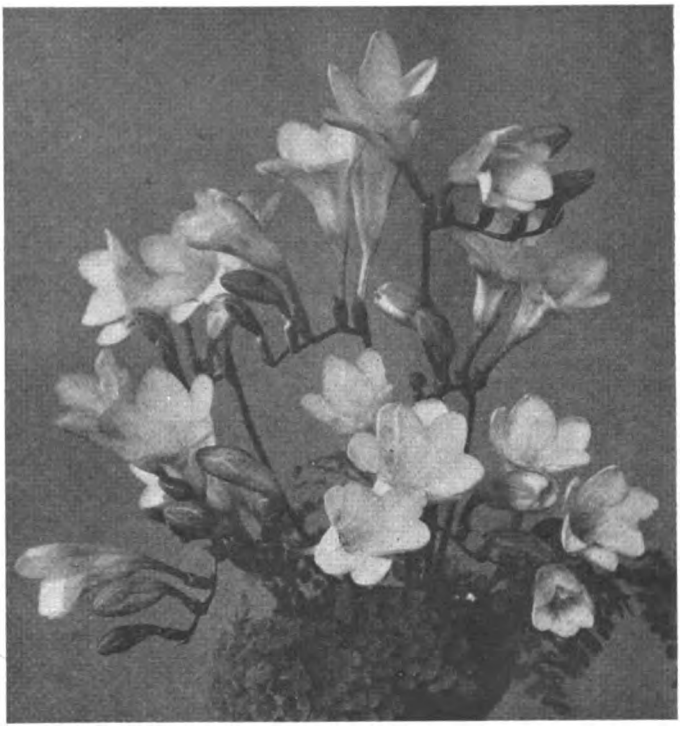
FREESIAS ARE GENERAL FAVOURITES

IF ever there has been raised a new race of flowers that has soon become a general favourite, freesias rank first. It is only a comparatively short time ago that the first new break, Freesia Tubergeni, the result of a cross between F. Purity and the Cape species Armstrongi, made its appearance, and in the course of a very few years such improvements have been made in size of the individual flowers, as well as in the colours, that the first new-comer can scarcely be recognised now and is only kept as a curiosity. As far as mauves, carmines and the so-called blues are concerned, it can safely be stated that Armstrongi has influenced these crosses, whereas the best yellows and oranges originated by crossing Purity with Chapmani, the origin of which is unknown to me. The suggestion that F. aurea from the Cape has been one of the parents had to be abandoned, as the flowers of this species are very unlike any freesia, being very small and inflated and having three vivid orange blotches at the tips of the corolla. All varieties that I raised by aid of F. aurea distinctly bore these characteristics, and not one F. Chapmani ever appeared among them. Perhaps Mr. Chapman, the raiser, will oblige readers of THE GARDEN by shedding some light on this puzzle and say what species or varieties he used to obtain the uniform deep yellow in his namesake, which, very small-flowered as it is, has an undeniable charm on account of its fine shade of colour.

As most of the varieties which had their origin in the Zwanenburg Nurseries have been shown in London by that enthusiastic exhibitor, Mr. Dalrymple, it is not on my way to sing their praise in these columns, as good varieties besides mine have now come to the front, last but not least that fine blue acquisition baptised Wistaria. It is a pity that no other name could be chosen. It always seems to me rather a wrong method to employ a Latin name of another flower that has nothing to do with the new one.

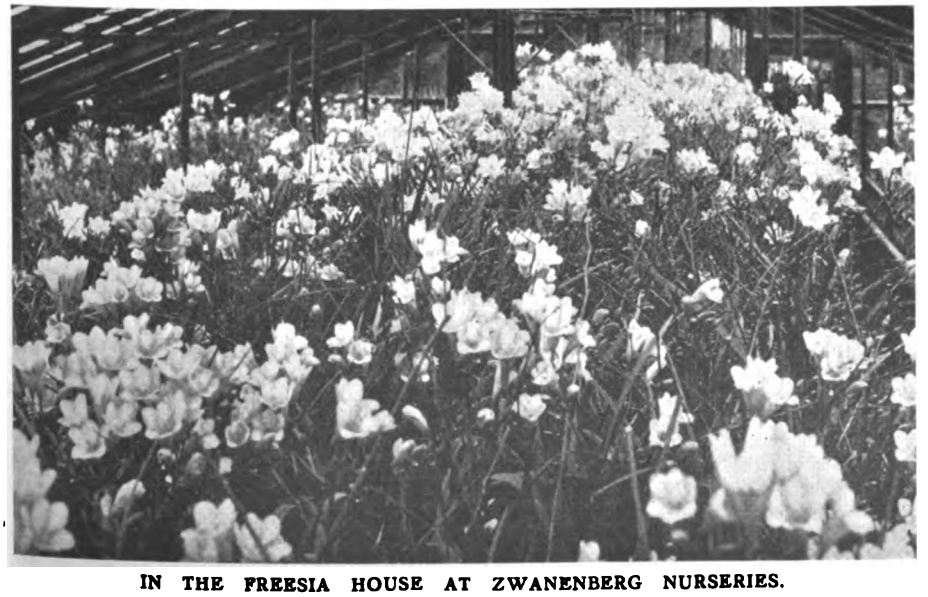
Freesias are of the easiest imaginable culture, and although complaints sometimes come in that leaves only and no flowers have been produced, these failures are invariably due to unsuitable treatment and through the desire of having them in flower at a premature date. The accompanying illustration shows one of my cold houses devoted to freesias, planted at the proper time and treated as they should, flowering about the beginning or middle of March. After having been harvested in July, the corms must be kept absolutely dry and in a temperature of 70–75° Fahr. until the beginning of September, when the corms show signs of root action. Planting, if at all necessary, can be deferred until October, but I do not recommend this, as by planting so late growth is uneven and a few of the plants will be in flower when the great percentage are only showing buds.

Suitable soil is a mixture of old well-decayed leaf-mould, some old perfectly rotten cow dung, a fair sprinkling of sharp silver sand to keep the compost porous and open, and some bone-meal or pulverised mortar rubbish. Pots of 4–4½in. diameter, five to six corms according to size must be taken,



ONE OF THE BEST OF ALL FREESIAS, APOTHEOSIS.

and these covered up with soil so as to have the tops just under surface level. In case the soil is dry, give the pots a good soaking and put them under cold glass, where they start very soon and make rapid growth. Freesias evidently like a genial atmosphere to start, and if thus treated, after the roasting before planting, the much-dreaded "duds" will not appear and development is quite normal. As soon as cold, wintry weather sets in the next move is to the house, where they are intended to flower, and which must be kept as well ventilated as possible. What freesias, as all Cape bulbs, greatly dislike is a close atmosphere, and if the temperature sinks as low as 35° or 36° Fahr., it will not do any harm provided the air is not laden with moisture. To avoid this, it is a good plan to let the hot-water pipes circulate on dull, sunless winter days and open one or two of the windows so as to stimulate air circulation and purify the atmosphere. Temperature must be kept up from 50° to 55° Fahr., not more, and as soon as, in early spring, the sun attains more strength no artificial heat is at all necessary.



IN THE FREESIA HOUSE AT ZWANENBERG NURSERIES.

Freesias can stand any amount of sun; in fact, do not flourish without it, and when in full growth like much moisture at the roots. As soon as the flower-spikes appear a dose of weak liquid manure will work wonders by giving strong, thick stems and highly coloured flowers.

There is little doubt that although the freesia is already a general favourite, it will become one of the most popular flowers for spring decoration. Apart from its great decorative value, it gives the maximum of effect with little waste of space that is valuable, and very little attention.

C. G. VAN TUBERGEN, JUN.

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ROYAL BOTANIC GARDEN, EDINBURGH

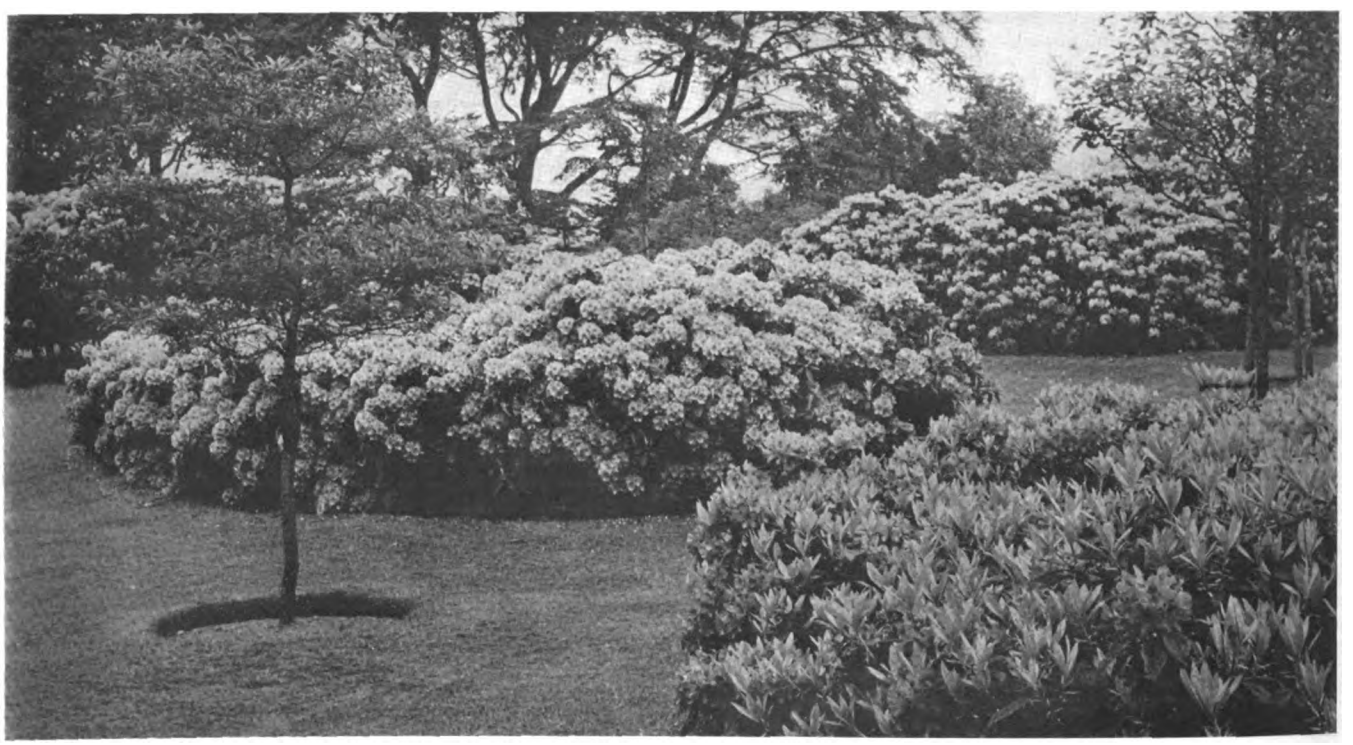
BY R. L. HARROW.

THE bright, sunny days of June and July, after the heavy rains which we experienced during May, has this year been favourable for the production of fine foliage, and also the free flowering of many plants in the Royal Botanic Garden, Edinburgh, and the east of Scotland generally.

This has been specially noticeable in the rock garden, where the plants have revelled in the sunshine, and the general appearance in May and June was one of rich colour, with the number and variety of species in flower. Meconopsis are among the attractions to be looked for here. Of those lately flowering, M. latifolia is the species most generally admired, and is certainly among the best of those for giving a succession of flowers late in the season. Self-sown plants in large numbers appear in the crevices of the rocks, among other inmates, and require no special attention, giving a rich harvest of Cambridge blue flowers. This species is seldom raised from seed artificially so abundant has it become in the rock garden. M. Prattii also sows itself very freely, and is now producing flowers of a surprising variety of colour. Among them are dark blue, chocolate and white, which are outstanding in their hues. Among the disappointments, up to the present, are the colours of M. speciosa, as they are at present cultivated here. They show none of the fine blue tones described by their collectors. Other species that have flowered are M. impedita, M. aculeata, M. grandis, M. simplicifolia, Bailey's form, and M. integrifolia, in its varied forms, all of which are beautiful in their season. There are still several good primulas to be seen, among the most attractive being P. Littoniana, in a good sized clump, the bright scarlet calyces of the unopened flowers being so distinctive in this remarkable species. The microforms of P. capitata are also coming to their best, the finest being perhaps, P. Mooreana, with its large dark bluish flowers aggregated at the end of the silvery scape. Another primula which should be grown by lovers of this genus is P. nutans. This species requires a shady, moist position to secure good results, and will well repay any trouble taken, as when well grown and in bloom, with its dense muscaroid-like inflorescence of lilac blue flowers, it is the admiration of all. Others which bloom in July are P. obliqua, with strong foliage and yellow flowers; P. sikkimensis and its purple Chinese allies, P. vittata and P. secundiflora.

The candelabra section are also useful to prolong the season of bloom in this genus, and the following are still blooming freely: P. Wilsoni, P. Poissoni and P. glycosma, all with purplish flowers, while P. helodoxa and P. Smithiana should be grown for their yellow heads of bloom. A good display of gentians is probable this year, judging by the luxurious vegetative growth. Such species as G. sino-ornata now covers yards of space, both in the rock garden and the rose garden. In the latter it is used as a ground cover under the taller roses. Here the earliest form to flower is Ward's No. 4859, which is much lighter in colour than that procured by earlier collectors.

G. Farreri is also growing well and will soon burst its flower buds. A pretty plant is G. Arethusæ, forming compact clumps of stems and foliage, with light blue and white coloured flowers, smaller in all their parts than G. sino-ornata. Whether this plant will be so amenable to cultivation as the latter has not yet been proved, but it certainly appears to be a good garden plant, both in regard to its habit and growth.



CLUMPS OF RHODODENDRONS ON THE HILL.

Flowers are also appearing on G. Lawrencei, the Siberian species, closely related to G. Farreri, though easily detected from that species by the longer, more slender stems, and narrower leaves, as well as by its smaller expanded flowers. Perhaps the darkest coloured flowered species is G. Veitchiorum, the corolla of which is of a deep purple blue. It does not spread so rapidly as some and does not seem common in gardens at present, but it is well worth a place where this genus is grown. A good patch of Dracocephalum bullatum may be seen covering about a yard of ground in a sunny, dry position, only 6ins. or thereabouts in height with numerous flowers of a pleasant blue. D. Forrestii and D. tangutica are good plants, either for the rock garden or border; both grow rather more than a foot high, and the former has attractive light blue flowers, while D. tangutica is of a much darker shade. Spenceria ramalana, a small rosaceous plant with nearly pinnate foliage and racemes of yellow flowers, makes a good show in July in a very dry position on a rising slope. To mention the many dianthus, campanulas, allium and other genera still at their best is impossible here, and the decorative effects should be seen to be really appreciated. In the wild garden, under the thin shade of pines and broad-leaved trees, Meconopsis

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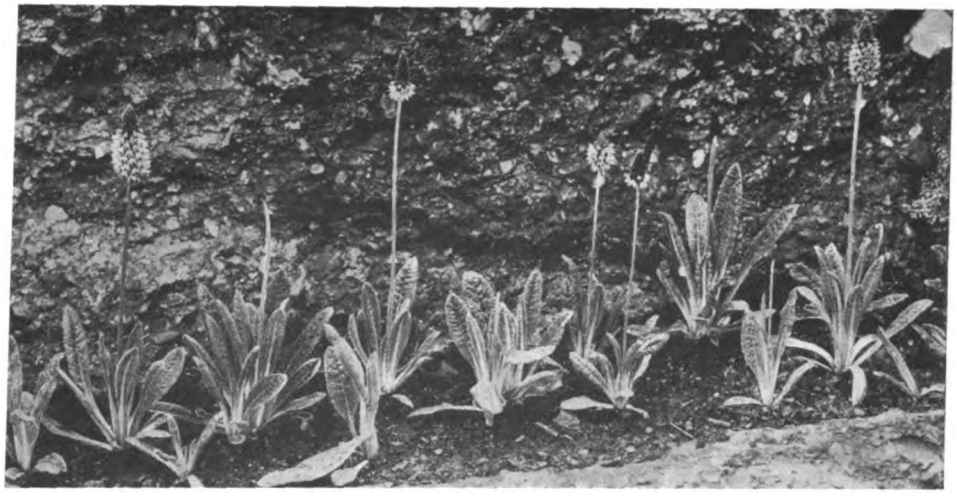
Wallichii and Lilium giganteum are grown in combination, and, flowering together as they do, form a handsome and attractive group. Large numbers of rhododendrons are planted in borders on each side of grass paths, and among them primulas and meconopsis enjoy their positions in the shade and moisture of the trees and bushes. Here, also, is to be seen Tricuspidaria lanceolata and Eucryphia pinnatifolia, opening well and in fine condition.

English iris, foxgloves, spiræa and Impatiens Roylei contribute to make this part of the garden a pleasant walk in summer, while numerous bulbs prolong the season in early spring. The herbaceous border is at its best in midsummer, and the bright sun of the last two months has done much to keep the long stretch attractive. By copious and successive waterings good foliage and a profusion of flower has resulted. Here the season has been favourable for the mulleins or verbascums, of which a number of species are grown, conspicuous among them being V. pulverulentum, V. longifolium, V. Wiedmannianum, and others, which provide a good show over a long period. Several of the Chinese senecios are admirable subjects for the border. Among them may be noted S. japonicus, with large brilliant flowers, reaching a height of 4ft; S. Veitchianus, S. fibrillosus and S. plantaginifolius, this last with crowded inflorescences and large individual flowers which stand out against the glossy and rather long, narrow foliage. It prefers a moist, rich soil. Among the many species and varieties of delphinium, the Abyssinian D. Welbeyi stands out as a late-flowering plant. The light blue flowers open about the end of July and continue until late summer. D. Cashmerianum and D. Brunonianum are still good. Adenophora Bulleyana forms a fine clump nearly 4ft. in height, with long branching stems bearing many light blue pendulous bells. Lereschia Flahaultii is a graceful umbelliferous plant with an airy appearance given by its light inflorescence above the dark foliage. Lobelia Tupa, sometimes thought to be tender, is represented by several clumps in full bloom. Aconitum volubile, and its variety latisectum have reached the tops of their supports. The white plumes of Stenanthium angustifolium, always an attractive plant when in flower, appears in mid-July and on until August. Under glass the different houses contain much of interest, both under cool and tropical conditions. The large central house and corridors are gay with wall and roof plants, among which may be noted Solanum Wendlandii with many magnificent trusses of light blue flowers; Mutisia decurrens, which here grows as well out of doors as under glass. Hidalgoa Wercklei, a scarlet climbing composite; Bomarea patacocensis, one of the finest of this beautiful climbing amaryllidaceous genus. Fuchsias in several species and hybrids adorn the roofs. Iochroma tubulosa, 20ft. in height, with many pendulous blue trumpet-like flowers, among its rather evil-smelling foliage. Bignonia Cherere, a strong grower, bearing numerous trusses of large red flowers, is an outstanding plant; while one of the prettiest plants in the beds is Cyrilla racemiflora, the leatherwood of North America, laden as it is with numerous racemes of small white flowers. A good representative collection of orchids may be seen in the houses devoted to their cultivation, where there are always some interesting and curious genera flowering. Many coloured foliage plants are grown in the stoves. Conspicuous among those flowering at present are Ouratea flava, a showy plant of the order Ochnaceæ, with large panicles of yellow flowers; Hibiscus Scottii, a yellow species from Socotra; Allamanda grandiflora, a less rampant grower than some of these showy plants. Ixoras in variety, and many others, help to give touches of colour. The occupants of the Aroid House, which are all planted in beds, grow luxuriantly and the foliage of Anthuriums, dracaenas, dieffenbachia and maranta, combined with the climbers from the roof make this house very popular.



ROBUST PLANTS OF PRIMULA LITTONIANA.

Visitors to the greenhouses should also take the opportunity of seeing the palm houses, the collection of rhododendrons under glass, as well as the houses devoted to insectivorous plants. In the garden are growing many of the newer introtions of trees and shrubs, and those specialising in outdoor gardening will find much of interest for all gardening purposes.

For the accommodation of those plants more recently brought to this country, long borders have been made where the specimens may be grown until they are removed to their final quarters in the collections on their attaining sufficient size. It is an astonishing fact how many of the recent Chinese introductions are thriving under the conditions that are met with in Edinburgh and the East of Scotland, and the results of the experiments in cultivation carried out here go far to show that the majority of these Chinese species can be planted with almost absolute safety in the majority of Scottish gardens, and so enhance their general appearance.

A CORNER OF THE FAMOUS ROCK GARDEN.

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RASPBERRY TREATMENT

THE raspberry is a very popular fruit and is in great demand for preserving and other purposes. To get fruits to perfection they have to be grown well. It is not easy on an unsuitable soil to reach perfection, but granted a favourable soil, well prepared, there should be no difficulty in getting fine large fruits. Good cultivation, attention to details and growing the best varieties is essential to success.

A good open position should be chosen. A rich loam of fair depth and well manured is what the raspberry delights in. It is, of course, possible to grow them in any good garden soil which is not too stiff. Soils which are heavy and compact, and which bake in dry weather, require a lot of attention to prepare and to keep in condition for this fruit.

Well drained ground is essential. If possible the ground should be dug sufficiently early to allow time for it to settle for planting in October or early November. Good canes should be chosen for planting, and great care taken not to get the roots dry between the lifting and planting. The raspberry has a mass of fine fibrous roots which easily suffer if exposed to drying winds.

Raspberries are usually planted in rows, and occasionally in clumps. The distance varies according to whether it is desired to intercrop and depends somewhat on the soil. On poor soil it is well to give more space so that the canes can have the maximum amount of sun and air. Five to six feet between the rows is the usual distance and the canes set at 18ins. apart.

Eventually three to five canes should be aimed at for each stool. For very strong growers three would be sufficient.

PRUNING AND TRAINING.

After planting, the canes should be cut back to 2ft. from the ground, or to 9ins. according to circumstances. The latter is best except in severe winters when the cut back stem often dies some distance below the cut. Protection would, therefore, be necesasry, if cut to 9ins., in the way of litter. The canes left at 2ft. would be shortened back in spring, as soon as they show signs of growth. Generally the lower a cane is cut the better it breaks from the base.

If planted in clumps, it will only be necessary to place a strong stake to which to fasten the new growths as they develop. When planted in rows, the neatest way is to put a stout stake at each end of the row and strain two or three wires to support the canes. Four or five feet will be sufficiently high for the tops of the canes.

During the first year encouragement should be given to produce strong canes by keeping the ground free of weeds, mulching and, if necessary, watering.

On no account should the ground be deeply dug immediately surrounding raspberries, since it produces most of its roots near the surface and those are of a fibrous nature.

Providing the canes are vigorous, a good crop of fruit should be obtained the second year after planting. Early in spring a top-dressing should be given of good decayed manure, but not forked in.

Superfluous young growths should be pulled up to avoid crowding and to give extra light and air to the stronger young canes. Some varieties will need this more than others. The variety Lloyd George usually throws up too many growths, but Pyne's Royal is not likely to do so.

After fruiting the old canes should be cut right out. The new growths may require a little pruning in the way of shortening the strong growths, but the final pruning of the canes to the restricted height should be left till spring, owing to danger of frost, which might cause them to die back if cut early.

PESTS.

The raspberry is not subject to many serious pests. The beetle is no doubt the worst and is capable of doing a good deal of damage by eating the blossoms or cutting them off. The grubs destroy or infest the berries until mature, causing them to be unfit for table use.

As a means of prevention, old canes should be immediately cut out and burnt, as they harbour some of the pupæ. Fruits known to contain larvæ should be removed and burnt. Spraying with arsenate of lead when the blossom buds appear and again two weeks later. Jarring off the beetles on to tarred sheets on dull days when they are inactive. These measures would tend to keep the pest at bay, if not to eradicate it.

The stem caterpillars, also, do a certain amount of injury. The moths lay their eggs among the flowers, and the caterpillars feed upon the leaves. After hibernating in the ground, they ascend the plants in spring and bore into the young canes at a bud. This causes the shoots to droop. When this is noticed they should be cut off and burnt. Lightly pricking the surface soil and exposing the caterpillars to the birds will do good.

A disease known as "spot" occasionally damages the canes, causing them to die. Infected canes die instead of fruiting, and should therefore be cut away and burnt as soon as the symptoms —small red spots—are noticed. Bordeaux mixture at half strength is recommended as a preventative.

VARIETIES.

LLOYD GEORGE is a variety now well known and is termed a perpetual fruiter. It crops in summer and again in autumn on the tips and laterals of current growths. The fruits are large and bright red colour.

PYNE'S ROYAL.—This is a splendid variety, but must be well looked after to get good growths. It is a heavy cropper and the fruits are very large. An excellent sort for small gardens and large.

BAUMFORTH'S SEEDLING.—A good strain of this is an excellent variety. A good cropper, fruit large and dark crimson in colour.

THE DEVON promises to be a fine variety. It is a strong grower. Fruit conical in shape, large and good colour.

PROLIFIC is a good variety, with a good constitution, producing upright canes. A good cropper.

BOUNTIFUL is an excellent variety. Fruit large, and of good flavour.

SUPERLATIVE is still grown by many, but we have discarded it after a trial with most of the above mentioned varieties, with which it compared badly.

ARTHUR J. COBB.

GARDEN FRAMES

CONCEPTION of the true meaning of the term "well appointed garden" varies widely, and there are those who look upon frames and pits as being of small consequence; in fact, just makeshifts for those who, unfortunately, possess no greenhouses.

This is an error of judgment, for frames are not only a serviceable and necessary adjunct to a range of greenhouses, but for certain purposes either portable, unheated frames or brick-built heated pits accomplish better work than the larger and more elaborate structures. To begin to enumerate the special purposes of frames is a simple task, but it would be more difficult to choose the correct place to write finis to the list.

During the present season and well on through the winter cuttings of hardy perennials, florists' flowers, alpine and rock plants of varied character root better under a comparatively small, tight-fitting frame than in any other accommodation. An extensive range of choice shrubs need frames for the purpose of propagation, and seeds as well as cuttings will in numerous instances succeed better in frames than on greenhouse stages or shelves. Portability is of immense advantage, for one may place a frame behind a fence or wall, securing the benefit of protection from direct sunshine without the necessity for overhead shading, and when cuttings have rooted or seedlings have attained sturdy development the frame and its contents may be transferred to a sunny position.

SPRING USE OF FRAMES.

In spring frames are an absolute necessity for hardening the whole range of summer bedding plants, and many bulbous flowers that will not tolerate a forcing temperature may still be brought into bloom in advance of outdoor

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stock with no other aid than the covering lights of frames.

Even the kitchen garden requires the aid of frames for raising seedling plants, and for the production of early salads, while a summer crop of cucumbers or melons can be grown to perfection in a frame mounted on a well built hot-bed.

Where conservatories have to be continually furnished with decorative plants, frames will be required for the summer accommodation of cyclamen, cinerarias, primulas, calceolarias, celosias and schizanthus, while the finest of liliums will spend much of their time in frames with advantage.

DESIGN AND CONSTRUCTION.

Design and construction is a matter of considerable importance, and in the case of portable frames only the strongest are good enough, for one cannot frequently remove a flimsy frame from place to place without damage. That is an important point, for there are frames on the market which are produced for cheapness and, being constructed of the commonest sappy timber, glazed with the thinnest foreign glass, the lights warp, cracking the glass, and the timber of the frame shrinks, admitting draughts, which do incalculable harm to plants, especially in their early stages of growth.

The double light portable frame illustrated shows a substantially built, roomy and easily handled frame made by the well known firm of Boulton and Paul, Limited, Norwich, who may be relied upon for expert workmanship and sound materials. This may be called a "general purposes" frame, but the firm also makes frames for special purposes, and it may be well to consider the relative merits of span-roof and three-quarter span-roof frames as well as lean-to patterns. For raising seedlings, rooting cuttings and for hardening bedding plants the ordinary lean-to frame is most appropriate, because it may be placed in any position or aspect required and the plants will all be near the glass, an important point, as all experienced cultivators know.

THE SPAN-ROOF FRAME.

The span-roof frame has particular advantages for production of flowering plants, the chief of which are admission of light from two directions instead of one, maintaining symmetry and balance in the plants instead of leaning toward a one-sided source of light, means of ventilating on both sides or on the leeward side in windy weather, and a depth sufficient for such pot plants as require a foot or so more than the customary depth of the lean-to frame. The centre of a good span-roof frame will accommodate fairly large fuchsias, azaleas and liliums, and when such a frame is required for Primula sinensis, cyclamen or other dwarf plants, a temporary series of shelves can be introduced to raise the plants nearer the glass.

A three-quarter span is convenient where space available is insufficient for a full span, the height being gained without extending the base beyond the width of an ordinary lean-to model.

VARIOUS FRAMES.

While the portable frame is of very great service for a variety of purposes, there are sometimes distinct advantages in having permanent frames with brick instead of wooden sides. Such frames if situated beside greenhouses may have a hot-water pipe run round them, and with no appreciable addition to the fuel bill the accommodation may be considerably increased for production of dwarf chrysanthemums, early daffodils, tulips and irises, dwarf pot roses, and a useful variety of other winter and spring subjects.

Brick-built, unheated frames are best for collections of choice alpines in pots and pans, and also for British ferns, collections of Chinese primulas, and the hardy terrestrial orchids.

Hot-bed frames have their special uses in raising early food crops, and where fresh stable manure is readily obtainable advantage should be taken of this useful means of obtaining a growing temperature. Naturally, hot-bed frames depend largely on the amount of out of season produce that is required, and probably for the small average garden this is the frame that is least necessary.

Messrs. W. Duncan Tucker and Sons, Limited, manufacture serviceable frames for large and small private gardens as well as for commercial establishments, and other good makers are Messrs. Foster and Pearson, Limited, and Messrs. W. Messenger and Sons, Limited.

The care of frames must, of course, include periodical painting with good paint, but both the lights and framework should be well scrubbed before being painted to remove slime and fungus. Equally important is the storage of frames when not in use. They should not lean in a manner that twists and warps the woodwork. They should rest evenly on planks or on bricks, and if on edge, should be secured against rough winds by a strong cord or wire.

A SUBSTANTIALLY BUILT DOUBLE FRAME.

CORRESPONDENCE

FLOWERS IN THE LOOKING-GLASS.

"To hold as 't were, the Mirror up to Nature."

SIR,—Has anyone ever noticed what an alluring background a looking-glass is to a floral arrangement? Shakespeare was before us in this, I feel sure I understand this line now! Picture to yourself a long, low mirror that rests on an old oak mantelshelf set eye level in the wall, a Buhl clock ticks melodiously in the centre, on either side priceless white china figures pose in graceful inimitable attitudes, beside them I place small bowls of flowers.

To-day the colour scheme is pink, white and yellow, and next to the curtseying china dame, who presumably is blushing behind her fan, I arrange a posy of fragrant mignonette from which stand up a few nodding heads of exquisite sweet peas; the wavy wings of the sweet peas in the glass and their equally beautiful faces before me. Flowers, let me remark *en passant*, stand an all-round view! They have no back hair to become dishevelled. From whichever point you regard them they are always beautiful, wonderful! And when the flower is a sweet pea you have a dream of beauty from any angle! Then in the other bowl beside the gallant who for ever bows and smiles towards his lady-love are a few choice roses. I watch them as I delicately turn them this way and that, like the Japanese expert endeavouring to bring them into their most graceful pose, and I assure you I *felt* that the flowers loved their reflecting background. I thought, but I won't vouch too positively for it, that I espied Mme. Abel de Chatenay nodding coquettishly at Son Altesse the Prince, and I almost heard the sweet peas in the opposite bowl titter! So I left them, to

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try another looking-glass effect on the staircase.

In years long past some ancestress, troubled with more than her share of vanity, had conceived the delightful idea of a looking-glass wall which faced her as she descended the long flight of easy steps to the turn in the staircase from which one gets the first glimpse of a large black and white chessboard floor of the entrance hall. Behold her gowned in hoop and farthingale, powder and patches galore, daintily toying with her miniature fan and casting approving glances at herself as she trips lightly down! To-day she will find in the corner of her mirror a tall twisted glass vase, not of trumpet variety please, a wondrous thirsty contrivance to my mind, but a vase which I picked up on a foreign trip in the happy pre-war days, capable of holding more than a flower's ration of water. In it I have plunged a sheaf of white mallows somewhat shorn of their too ample green foliage, and among them, and with some trouble I own, I have enticed long trails of purple clematis to repose. (The colours of our erstwhile militant sisters, but no matter!)

So now if my lady ancestress comes down from her powdering chest to-day she will find mirrored before her two visions of floral beauty, to say nothing of her own lovely face above them, and I am sure she will approve of my latest efforts in "doing up the flowers," as we style it.—E. M. HARDY.

CISTUS RECOGNITUS.

SIR,—The name Cistus recognitus was given by Rouy et Fonc. in Fl. de France (1895), to a hybrid cistus occurring in Provence, Languedoc and the Eastern Pyrenees. Its parents are C. laurifolius and C. monspeliensis. The plant had previously been named C. glaucus in 1788 and it is included in their Prodromus fl. Hispanica (1880), by Willkomm and Large, under that name, and Willkomm figured it in his Icones in 1856 as C. Lèdon, Lamarck's name for the plant, given in 1790, transliterated by other authors into C. ledonius. C. glaucus is, therefore, the oldest name. Among the white flowered hybrids with the outer sepals smaller than the inner, it is distinguished by the *short* petiole and the many flowered inflorescence. C. Loretii is a hybrid between C. ladaniferus and C. monspeliensis, with the habit of the latter. It has one to five flowers in the inflorescence and they are spotted in some forms, unspotted in others. This hybrid was obtained by Bornet in Antibes but has been recorded as wild from Herault and Algeria. Its leaves are generally narrower than in Rouy and Foucaud's plant.—FRED. F. CHITTENDEN.

YELLOW HYACINTHS.

SIR,—In THE GARDEN of August 22nd I saw a letter from one of your correspondents, in which he states that there is not a true buttercup-yellow hyacinth. I expect he never has seen a double hyacinth, "Sunflower," which has the buttercup-yellow colour. Two single ones very near the buttercup-yellow colour are the new Hyacinth Prince Henry and the older variety, L'Or d'Australie.—A DUTCH BULB TRAVELLER.

RED-HOT POKERS.

SIR,—Reading "Clydesdale's" notes on Red-hot Pokers in your issue of August 22nd, and being most interested in them myself, I venture to send an account of my own experience and knowledge of newer varieties.

Two years ago I formed and devoted a long border for these beautiful and striking plants, and this year, in spite of the long, hot and dry period, I can see considerable progress in their growth.

The border faces south-east and is sheltered from the north by a thick shrubbery; it is composed of somewhat heavy but well drained soil, which all these lilaceous plants require. In exposed positions roots must be protected in the winter from heavy rains and severe frosts, but here, in Nottinghamshire, I have never had occasion to cover with ashes, although each spring I have protected early growth with small branches of fir or spruce, from late frosts.

Of the varieties I have planted, here are some: C. M. Pritchard is one that grows from 4ft. to 5ft. high, with stately spikes of yellow flowers; Grandis has immense heads of orange scarlet and is very gay; Rufus is a very effective one, with bright yellow flowers and a scarlet crown—it has proved rather slow-growing with me; others include Star of Baden, Royal Standard, with very bold spikes, Buttercup, John Benary, and Rouge et Soufre, which is especially fine growing from 5ft. to 6ft. high.

Of the gracilis variety, a group of dwarf hybrids, Lady Hillingdon is my favourite, having graceful spikes of sulphur yellow flowers with an orange tip; Sunset is another good one of this class, as also are Matador and Defiance.

Several new varieties have made their appearance since these were planted, so that I advise anyone who thinks of making a border to allow for fresh varieties when planting. They form a delightful stretch of colour and are in bloom from June to October. If any garden has the space and a suitable situation, I have no hesitation in recommending these lovely plants, which will amply repay for their trouble and attention by the brilliance of the many varied shades and heights.—E. BRANDRETH FREEKINGHAM, *Nottinghamshire.*

THE PROTECTION OF WILD FLOWERS.

SIR,—As a lover of the beautiful in nature, a life-long collector of plants for the herbarium and occasionally for botanic gardens, hon. secretary of the Watson Botanical Exchange Club (founded in 1884) and, incidentally, an Associate of the Society for the Promotion of Nature Reserves, I am much interested in your leading article on the protection of wild flowers in your issue of August 22.

I quite agree that "the actual urban dweller is unknowingly much more destructive" that the person who transplants a few roots of wild plants to his own or another garden; for the former frequently gathers huge bundles of flowers, some of which are strewn by the roadside, and others soon wither by the score when placed in dense masses in vases without sufficient light and air, without any cutting of the stems, and often with no renewal of the water.

I also believe far more good can be done in the schools by telling children of the harmfulness and selfishness of pulling up too many flowers (*e.g.*, bluebells, daffodils and primroses), however abundant they may be, and by occasionally asking owners or occupiers if notices requesting the public not to pick the flowers or take roots could be placed in certain places, than by the passing of by-laws by local authorities. You rightly say "the fault is caused [usually] by ignorance, not wilfully, and publicity is surely the obvious remedy." But when such vandalism is not the result of ignorance, as is sometimes the case, a by-law may do little good in these days of increasing and hated bureaucracy.

Rather than threaten, we must educate the people to reverence all beautiful things and to respect both vegetable and animal life more. The schools, the Kyrle Society, Boy Scouts and Girl Guides, field clubs and natural history societies can all help in this direction. Some of these have already done good work. Fortunately the intellectually and otherwise unfit teachers in elementary schools are gradually being weeded out, and their places are being taken (when funds allow) by better trained, less ignorant young men and women who have a higher moral and æsthetic sense to cope with these small matters, as well as the larger questions of honour and fair play, with which, indeed, they are closely related. Teachers and others can encourage the young to gather fewer flowers, to cut them with a knife or scissors and carry them home in a tin box of any suitable shape. They would thus not only keep fresh, but the mere fact of making a reasonable selection in the field would inspire a greater love of nature and instil into youthful minds more of the beauty and mystery of the plants themselves.

We must learn to trust the boys and girls from the slums more: to guide them rather than force or threaten them with fines or imprisonment for killing a rabbit or taking flowers which do not belong to them. In Bristol insufficient flowers or flowering shrubs are planted in the public parks, with two laudable exceptions. I have been told the excuse is fear that children will gather them. A decent and well constructed rockery is unknown in these parks, if we exclude the wonderful natural rockwork on the Downs (the Downs belong to the city), with their rare limestone plants, which botanists have visited for centuries. The flowery parks and public gardens of London and, let us say, Bath and, perhaps, Birmingham tend to show that flowers will not be much touched when the people become accustomed to love and admire them. Boys do not throw stones through the windows of a palace or an ordinary dwelling-house, but they may fling one at an already broken window of an ugly and dilapidated building.

As to the damage done by botanists to rare and often unattractive plants, I emphatically agree that it is often grossly exaggerated, and usually by persons of comparatively little experience of life actually in the country. In the London district it may be different. And with the increasing plague of motor vehicles the danger is more real. Even eminent botanists and others, whose work lies more in museums and laboratories than on the countryside, are sometimes joyfully surprised to be told how abundant many a rare plant is locally. The average town-bred botanist does not usually see a tenth of the plants in a locality which the trained field botanist with leisure would detect. Just as the experienced angler knows where to expect a trout to lie, so will experience and instinct help the real field botanist in spotting plants.

After nearly forty years' connection with one of the two botanical exchange clubs in England, I do not know of more than about two cases in which appreciable harm was done to a species by excessive gathering, and in both cases there is plenty of the plant left in several counties. The two British exchange clubs actually forbid the collecting of some of the rare orchids and various other rarities, and the collection of obscure and often less attractive species and varieties which only appeal to the botanist is encouraged.

If anything further be done *à propos* the top of Snowdon garden scheme, the chief drawback is the danger of upsetting the natural state of things by the dissemination of seed from such preserves, so that future students of plant distribution in the British Isles will have still harder problems to solve than we have to-day!—H. STUART THOMPSON.

PLEASE REMEMBER TO TELL OTHERS ABOUT YOUR PLANTS THROUGH THE COLUMNS OF "THE GARDEN."

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GLADIOLI AND FRUIT AT VINCENT SQUARE

GLADIOLI were in the ascendant at the Royal Horticultural Hall, Westminster, on August 25th last. It was the occasion of the special Gladiolus Show, in addition to the customary fortnightly meeting, and besides the competitive exhibits, there were many large groups of splendid spikes.

Dutch growers were prominently represented and, while they staged very good spikes, it was gratifying to see that our home growers fully held their own and decidedly excelled with their novelties. Messrs. R. H. Bath, Messrs. Kelway and Son, Messrs. George Mair and Sons, and the Orpington Nurseries all had excellent collections. Chief among Messrs. Bath's varieties were Fire King, of vivid colouring; Black Pansy; Atherton, a deep primrose with a crimson blotch; and Electra, a brilliant scarlet with a crimson blotch. This collection also included many good primulinus hybrids.

A large group was also contributed by Messrs. Kelway and Son, who included Darkness, a smoky crimson-maroon; H. B. Stallard, rich pink, with a creamy centre; Mrs. Cely Trevilian, an immense blush pink spike; and King of Gladioli, among the large flowered sorts.

Although the Orpington Nurseries collection was rather smaller, it contained some excellent seedling gladioli and named varieties. Odin is a large salmon-pink, with a vivid crimson-lake blotch. Marshal Foch, large lilac with rose-pink lines at the base of the flower; and Red Emperor, were splendid.

The Continental exhibitors were Messrs. K. Velthuys and Co., Messrs. Konijnenberg and Mark, Messrs. J. J. Grullemans and Sons, and Messrs. Stouterbeck van Til, Limited. Their outstanding varieties were Mr. Mark; violet shades; Veilchenblau, blue-violet; Proserpine, vivid rose; Ophelia, apple blossom tints; Magnolia, large white with a few carmine lines at the base; Autumn Queen, white with crimson feathering; and Louise, lilac shadings.

The Foremarke Cup, which is offered for the best collection of twenty spikes of Gladioli, in not fewer than ten varieties, was awarded to Messrs. George Mair and Son, the only exhibitor, for a superb collection, which included Queen Mary, large white; Duchess of York, beautiful rose shades with white centre; Jean Mair, vivid carmine with white blotch at bands; Peach Blossom, of peach-pink colouring; and Kyle, a fine deep rosy-lilac.

Dahlias were shown in very good quality by Messrs. Carter Page and Co., Mr. J. West, Messrs. J. Cheal and Sons and Messrs. J. Stredwick and Sons, while Messrs. Chaplin Bros. and the Rev. J. H. Pemberton, showed good collections of roses. Their customary greenhouse carnations were staged by Mr. C. Engelmann and Messrs. Allwood Bros., and Messrs. Stuart Low and Co.

Some beautiful sprays of Eucryphia cordifolia, Solanum jasminoides and Berberis corallina were included in his interesting collection by Mr. G. Reuthe, who also showed various border and bog plants.

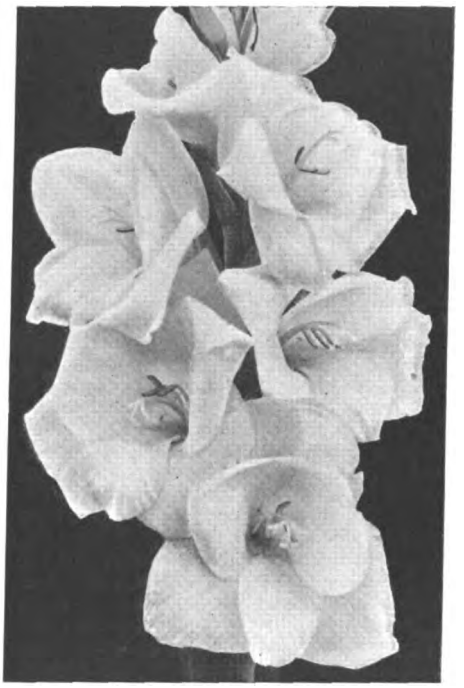
The tall-growing lobelias, chiefly varieties L. cardinalis, were well staged by Messrs. B. Ladhams, Limited, who showed the pink flowered Mrs. Humbert, Purple Emperor and vivid spikes of the Crimson Magnificent. As shown by Mr. F. G. Wood, Physostegia (Dracocephalum) virginiana is still a useful border plant for late summer blooming, and he also had graceful branches of the Tamarix and some good heleniums.

A collection of fruit trees in pots was of such high quality that the committee awarded a gold medal to Mr. J. C. Allgrove. In front of the trees there were baskets of gathered fruits of various kinds of superb quality. The chief apples were Keswick Codling, Red Victoria, Lady Sudeley and Red Astrackan, while the peaches, nectarines and plums were equally meritorious.

A collection of gathered fruits set up by Mr. H. Hemsley included very good baskets of apples Lady Sudeley, Beauty of Bath, Worcester Pearmain, Stirling Castle and Gloria Mundi. Nectarine Lord Napier and Peach Royal George were of very tempting appearance.

The only exhibit of plums for the Bunyard Medal was by Mr. R. Staward, Ware Park Gardens, and he was awarded the medal for a praiseworthy collection of such sorts as Monarch, Late Orange, Black Diamond, Primate and Green Gage. With their carnations Stuart Low and Co. showed good fruiting figs in pots.

Only a few alpine plants were exhibited, but those few showed how interesting the rock garden can be in late summer, when



GLADIOLUS WHITE LADY?

the majority of mountain plants have finished their short season and set their seed.

Messrs. Prichard and Son showed Anemone Hupehensis from Western China, the lately found parent of A. japonica. A neat little plant with shell-like flowers of deep, purplish pink carried on 10in. stems, with all the grace and refinement of a true species. Codonopsis Meleagris, a sinister flower in greenish white, veined with dingy purple, with an appropriate smell. Fuchsia pumila, a tiny compact bush with plenty of cardinal red flowers. Polygonum vaccinifolium, one of the best of the dwarf knotweeds, making a wiry, but not invasive mat, carrying tight spires of soft pink flowers.

Messrs. Reuthe showed Leucojum autumnale, a very autumnal flower in the ghostly pallor of its thin bells against the dark mahogany-red stems. Parnassia Caroliniana, a magnified grass of Parnassus, formal and elegant, in contrast with Silene Schafta, which is rather coarse and exuberant for an alpine.

NEW AND RARE PLANTS.

GLADIOLUS WHITE LADY (?).—As this name has already been applied to a gladiolus, the variety must be renamed. It is a magnificent spike of large pure white flowers, which have a touch of pale primrose in their centres, and the same colour lightly flushes the unopened flower buds. Award of merit. Shown by Messrs. Kelway and Son.

PHLOX ANNIE LAURIE.—This is a useful herbaceous variety of sturdy habit and producing big trusses of salmon-pink flowers which have a narrow rosy zone. Award of merit. Shown by the Hon. Vicary Gibbs.

PHYSOSTEGIA VIRGINIANA ROSEA LADHAM'S VARIETY.—A vigorous form of this useful border plant which was introduced from North America in 1683. It is a variable species and has given rise to many varieties of which this latest is decidedly the best. The plant is larger in all its parts and the flowers are a pretty pink colour. Award of merit. Shown by Messrs. B. Ladhams, Limited.

NEW DAHLIAS.

The following new varieties were selected by the Joint Committee for trial at Wisley next year.

CHEAL'S PINK.—A small decorative variety of good form and bright pink colour. The centre unopened florets are shaded dull heliotrope. Shown by Messrs. J. Cheal and Sons.

CINTRA.—A very useful yellow miniature peony dahlia of value for bedding purposes. This and the two following were shown by Mr. A. J. Cobb.

MRS. JOHN CROSSLING.—An attractive, rounded miniature peony of dwarf habit. The foliage is purplish and the flowers are of buff apricot shading.

ST. ANDREWS.—A vivid scarlet crimson dwarf miniature peony, which has dark stems and foliage.

EVELYN HANCOCK.—A large decorative bloom of broad cactus-like habit and lemon-yellow colour. This and the following were shown by Messrs. J. Stredwick and Son.

HARRY STRUTT.—A good brick-red cactus of the best exhibition type.

HENRY B. MAY.—A salmon-pink decorative variety of large size and tipped with white.

J. EMBERSON.—A large salmon-pink cactus variety with a primrose centre.

MARY MURRAY.—A pale orange cactus dahlia.

NOBILITY.—A wine red cactus dahlia tinged with purple.

ROTATION.—A good white cactus variety.

SHEIK.—A large decorative of pale primrose colour which is deeper in the centre of the blooms.

STEDFAST.—A large mauve-flushed decorative variety.

ORCHIDS.

BRASSO-LÆLIO-CATTLEYA GOLDEN GLORY (B.-c. Mrs. J. Leemann × L.-c. Orion).—This well cultivated plant bore a couple of large flowers, the sepals and petals clear lemon yellow, the finely formed labellum crisped and fringed at the margin, of bright rose colour on the outer zone, the central area yellowish with crimson suffusion. A marked improvement on the well known Brasso-Cattleya Mrs. J. Leemann. Shown by Mr. C. J. Lucas, Warnham Court, Horsham. Award of merit.

ODONTOGLOSSOM LAURENTIA MAGNIFICUM (Jasper × Olympia).—A showy hybrid and remarkable for flowering so well at this season of the year. The arching spike carried ten flowers of thick texture, the sepals and petals tinged with rose and bearing reddish markings. The large labellum broadest at the apex, white, with a bright red blotch on the central area, and a conspicuous crest of yellow colour Shown by Mr. J. J. Bolton, Claygate, Surrey. Award of merit.

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THE GREAT FLORAL SHOW AT SOUTHPORT

AUGUST 26th, 27th and 28th last found Southport as the Mecca of all gardening enthusiasts, who had come from near and far to view the truly magnificent show arranged under the auspices of this enterprising county borough. It was probably the finest horticultural exhibition outside of London, both from the point of view of the extent of the show, which covered close on two acres, and the high quality and standard of the exhibits. It is a notable achievement by a borough to which flower shows are a new venture, and that they have made a permanent success of it is beyond question. The arrangements could not have been better.

The majority of the large trade exhibits were in the non-competitive classes, and they probably attracted the greatest attention, as they most certainly deserved. Gladioli were present on almost every stand where hardy flowers were shown, while in addition there were several solo exhibits. Mr. W. J. Unwin had a tastefully arranged stand of his primulinus hybrids all in remarkably good condition. The award of a large gold medal by the Borough of Southport and a gold medal by the Royal Horticultural Society was really deserved by this stand. Messrs. Bath, Limited, of Wisbech, also had a pleasant and light arrangement in which the individual form of the flowers could be readily appreciated. Fine spikes of primulinus hybrids, notable among which was the variety Lydia, were staged by Messrs. Lowe and Gibson. In addition to these, Messrs. Bees, Messrs. Wilson and Agar, Messrs. Edwards and Messrs. Artindale staged excellent groups of large-flowered gladioli, all the flowers being of exceedingly fine form and size. In Messrs. Sutton and Sons' floral group, numerous tastefully arranged baskets of large-flowered gladioli were set out, and these stood out in great contrast to the baskets of brilliantly coloured seedling dahlias and the deep yellow marigolds. The dahlias were of especial interest, having been sown in the early spring of this year and transplanted in June. Messrs. Carter's arranged a rather novel exhibit in the form of a square lay-out. Lilium Henryi and L. speciosum rubrum formed the centre part, with a surround of gaily coloured mixed asters.

The exhibit of Mr. H. J. Jones once again attracted considerable attention. With a foreground of all his famous phlox varieties in baskets, against a background of large-flowered gladioli in all shades. Phloxes were also staged by Messrs. Bakers of Wolverhampton. These were interspersed by double hollyhocks, whose tall and elegant flowering stems greatly assisted to relieve the stand. One of the most outstanding exhibits was that of the Hon. Vicary Gibbs, staged and arranged under the able guidance of Mr. Edwin Beckett. This fine exhibit was awarded the silver challenge trophy, value £75, presented by the proprietors of the *People* for the most meritorious non-competitive exhibit in the Show. Messrs. McBean were successful in winning the silver challenge trophy presented by Sir John Brunner, Bt., for the most meritorious competitive exhibit in the Show. Their stand of orchids attracted considerable attention.

Carnations were displayed by Messrs. Allwood Brothers and Messrs. C. Engelmann. Both firms staged a very fine collection, consisting of many hundreds of blooms in good condition. Carnation Red Laddie, whose popularity bids fair to outdo its close colour relatives, gained an award of merit. Fruit was in the capable hands of Messrs. George Bunyard, Messrs. T. Rivers and Mr. Edward Parsons. The apples especially were of good colour, while the skin was pure and clean. The foliage of all the trees which were in pots was good. Mr. Edward Parsons showed his new Worcester Berry, a cross between Boskoop Black Currant and Whenham's Industry Gooseberry. The berries are of a good size and form, and the bushes appear heavy croppers. Sweet peas and roses were well staged by Messrs. Dickson of Belfast. Some of the well known varieties of roses were shown in spray vases and baskets, and formed a pleasant background to the more delicately coloured sweet peas, the tones of which were greatly enhanced by the dark foliage of the roses. A very fine group of ornamental foliage plants was that staged by Messrs. John Peed and Son. The green of the foliage was relieved to some extent by the introduction of clumps of lilies and hydrangeas, with a foreground of gloxinias. In contrast to the warm tones if the gloxinias, one found the fine collection of perennial scabious in all shades of blue, staged by Messrs. Isaac House. The blooms were all excellent, and fully deserved the award which was given.

A very fine collection of dahlias and chrysanthemums was that arranged by Mr. H. Woolman of Shirley. The colour and size of the blooms were remarkable. Many firms were exhibiting hardy herbaceous flowers, which included phloxes, rudbeckias, heleniums, sidalcias, and many other representatives of the hardy border. A striking stand was that of Messrs. Blackmore and Langdon, whose groups of double begonias and towering spikes of delphiniums in all shades of blue and mauve were much admired. Mr. Thomas Carlile and Messrs. Hewitt of Birmingham also staged fine collections of well grown varieties of this excellent blue representative in the border. The latter firm also staged a very fine collection of dahlias, embracing the majority of the types. The cactus-flowered varieties were in the best condition, the individual blooms being 6–8ins. across and brilliantly coloured. Hollyhocks were to the fore in the collection of Messrs. James Vert and Sons. All the varieties were double, and such as Crimson Queen, Salmon Queen and Fire King were indeed handsome. In roses Messrs. McGredy of Portadown were successful with a very fine collection, in which all the well known varieties and a few of their novelties, such as Gwyneth Jones, were represented. Messrs. Bees of Chester also had a tastefully arranged group in which many of the same varieties were shown. In addition to a very fine collection of dahlias and sweet peas and potatoes, Messrs. Dobbie and Co. of Edinburgh staged some fine roses. A few firms took full advantage of the space at their disposal and staged vegetables along with flowers. Messrs. Webbs, Toogoods, Dickson and Robinson, and Daniels of Norwich, all followed this arrangement, and it was successful. Gladioli in the majority of cases were employed as a background to lend a touch of brighter colour to the more dwarf subjects in the foreground.

Messrs. L. R. Russell stood alone with their fine exhibit of clematis in pots. The notable variety was Crimson King, of good vivid colour and of excellent habit and character. Water lilies were represented in the arrangement of Mr. Amos Perry. Probably too much was attempted in the space at his disposal, but nevertheless the general effect was good. Clumps of tritomas, Liatus and veronicas lent patches of colour round the small pond which the lilies occupied. There was also a fine exhibit of violas by Mr. Jones of Salop, and his collection included many excellent sorts.

Laid out in the grounds were the rock and water gardens, and these were of a high standard. In all the central theme was a trickling stream with two or three small pools in its course. In Messrs. T. Hayes' garden, which gained the silver challenge trophy presented by the Borough of Southport, the design, proportion and shape of the garden left nothing to be desired. The rocks of Westmorland limestone were worn and moss-covered and were laid out in pleasant lines. The quiet natural setting was greatly appreciated, and this, together with the selection of suitable choice alpines as inmates and the colour schemes, gained for them the premier award. One notable plant in their exhibit was a charming white form of Erica kevernensis.

In the competitive and amateurs classes the entries were numerous and the competition very keen, thus leading to a very high standard. In the many classes, of which there were 260, great improvements in the general display and arrangement could be noted. The decorative classes were well patronised, and the beauty of the arrangements and the effects which were attained were unquestionably among the best we have seen.

In the fruit classes, those devoted to grapes were really outstanding. There was little to choose between the different exhibits. The varieties shown were chiefly Muscat of Alexandria and Black Hamburgh. One large tent was given over solely to competitive exhibits of vegetables, and the majority of the collections reflected great credit on the growers. In another tent was housed floral decorations for the dinner-table and exhibits of violas and pansies, which were also of an exceedingly high standard. The Clay Perpetual Challenge Trophy was accorded to Mr. H. J. Milner of Handsworth for his collection, which was most tastefully arranged.

That the amateur exhibitor has assumed an important place at horticultural exhibitions is beyond doubt, if one can judge by the display at Southport. Numerous exhibits of all the necessary adjuncts to a garden and gardening knowledge found a place in the grounds, and these were, indeed, worthy of the attention which was given to them.

LISTS OF AWARDS.

Large Gold Medals.—Messrs. Allwoods for carnations; the Hon. Vicary Gibbs (gardener, Mr. E. Beckett) for vegetables—also awarded the *Gardeners' Chronicle* Medal; Messrs. Dickson and Robinson, flowers and vegetables; Messrs. Dobbie and Co., Limited, roses, dahlias and sweet peas; Messrs. Isaac House and Son, new perennial scabious; Messrs. T. R. Hayes and Sons, heath garden; Mr. H. J. Jones, gladioli and phloxes; Messrs. John Peed and Son, greenhouse flowering and foliage plants; Messrs. Thomas Rivers and Son, Limited, fruit trees in pots; Messrs. Sutton and Sons, seedling dahlias and gladioli; Mr. W. J. Unwin, gladioli.

Gold Medals.—Messrs. Blackmore and Langdon, begonias and delphiniums; Messrs. George Bunyard and Co., fruit trees in pots; Messrs. James Carter and Co., asters, lilies, gloxinias; Messrs. Daniels Brothers, gladioli and other flowers; Mr. Amos Perry, a lily pool; Mr. H. Thirkeldsen, formal garden; Messrs. Toogood and Son, cut flowers and vegetables; Messrs. James Vert and Sons, double hollyhocks; Messrs. E. Webb and Sons, flowers and vegetables; Messrs. Wilson and Agar, cut gladioli.

In addition to the above, there were many awards of silver and silver-gilt medals. The deputation of the Royal Horticultural Society made the following awards:

Gold Medals.—The Hon. Vicary Gibbs, vegetables; Messrs. S. McGredy and Son, roses; Mr. W. J. Unwin, gladioli; Messrs. A. Dickson and Sons, roses and sweet peas; Mr. James Cypher, decorative group; Mr. H. Woolman, dahlias; Messrs. M. Prichard and Sons, herbaceous flowers; Messrs. T. Hayes and Son, rock garden.

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APPLES AND PEARS IN MIDLOTHIAN.

TWO young trees of Apple Cox's Orange Pippin in 10in. pots, flowered well early in April, and for a neighbour they had a small tree in a 7in. pot of Apple Lamb Abbey Pearmain; this tree had only a very few flowers—of delicate pink and white colour. The flowers of all the three trees were brushed over several times with the rabbit's tail to secure cross pollination. The results have been successful, and we are rewarded with good crops on each tree, Lamb Abbey Pearmain having larger fruits than Cox's. It is said that Cox's Orange Pippin is self sterile, but there is no record so far as I am aware of Lamb Abbey Pearmain ever having been used as an affinity. The flowers of Cox's under glass are a delicate shade of salmon pink just before they open out. It is stated in McIntosh's "Practical Gardener," a book published more than eighty years ago, that Lamb Abbey Pearmain originated in this country from a seed of Newton Pippin.

Beurre d'Amanlis is stated to be self-sterile, but we secured a few very large fruits early in August of this year, from a pot tree, which flowered profusely under glass throughout the latter part of March. Certainly the rabbit's tail was freely used among the flowers, but only transferring the plants own pollen from flower to flower. Two years ago a better crop was got from this tree, and this, no doubt, was owing to Pear Marie Louise d'Uccle being a near neighbour and in flower at the same time. Each of these varieties is capable of fertilising the other, as when each is flowered separately or kept separately, little or no fruit is produced by either.

Marie Louise d'Uccle was smothered with flowers and flower buds in March, 1921, yet not one fruit was obtained from the tree. I even hand-pollinated the flower, yet the tiny fruit fell off later.

ROSES IN SCOTLAND.

FOR three weeks in July the hybrid tea roses made a wonderful display; the fine sunny weather which we had throughout that month suited the roses and each variety gave of its best. In the first half of August the rose display was flat; but now on the young strong stems—some of them about 3ft. high—numerous flower buds are formed. The growths have arisen on older parts of the plant stems from near the ground level, and a noteworthy point about them is their deep, brownish-red colour, which is coated in a fine healthy bloom. The young leaves, too, match these stems, and remind one very much of the foliage colour of Prunus Pissardi. Lady Alice Stanley, Richmond and Miss C. E. Van Rossem exhibit this colouring, La France just a little, while Old Gold is the best coloured of all; this semi-double rose is very floriferous and suited for a wet or dry year. By the appearance of the plants now a second splendid display of blossoms will be borne by them about the end of August. Roses of all kinds have flowered profusely, while those of the Wichuraiana type have blossomed beautifully overhead, blending in tone of colour with the border flowers which give a display in the late summer. Even those raised from cuttings a few years ago have flowered well and grown so thickly that the ground is hidden by their healthy stems and foliage.

ANNUALS FOR SOUTHERN GARDENS.

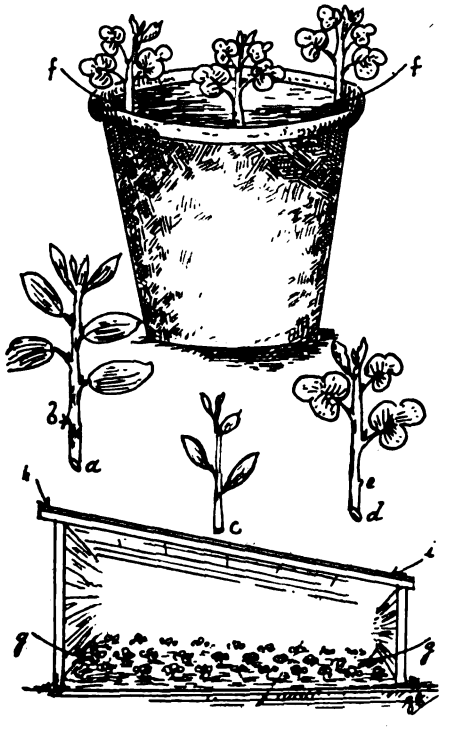
THE sowing of annuals in the spring is such an established fact that few give any attention to sowing seeds during the present month. That autumn-sown plants give fine results is beyond question, and, moreover, they flower earlier than spring sown, and fill up a dull period after many of the tulips, etc., are past their best. Many annuals sown in the autumn are far better than those sown in March or April, an illustration being self-sown eschscholtzias. Here and there a plant springs up, and the robust specimen, with its wealth of bloom in early summer, points not only to the value of the time to sow, but also the necessity of ample space in which to develop. Other instances could be quoted. Thin sowing should be the golden rule, and later on the seedlings must be reduced, bearing in mind the space the plant will require when fully grown. The "thinnings" can be transplanted to other parts of the garden if needed, and if the seed is sown where the plants are intended to flower, lines or rows will be preferable to broadcast sowing, because they can be more easily cleared of weeds which make progress during a mild autumn and winter.

A light, well-drained, rich soil is best for autumn-sown annuals, but a heavy rooting medium can be improved by the addition of old mortar rubble, leaf-mould, and ashes from the rubbish fire.

Slugs will be the greatest enemy during the winter months, when growth is slow or stationary, but these can be trapped by various methods, and an occasional sprinkling of old soot and lime will help to keep these marauders in check. Among annuals suitable are the eschscholtzias, of which there are some striking varieties; the Shirley poppy is an ideal subject, also godetia, larkspur, clarkia, cornflower, coreopsis, nemophila, silene and many others. Sweet peas will be sown some weeks hence.

CUTTINGS OF SOME BEDDING-OUT PLANTS.

THE amateur who does not possess a lot of glass, in the form of greenhouses or frames, should get as many cuttings inserted, rooted or, at least, callussed as soon as possible after mid-August. Usually,



it is the cuttings that do not form a callus before the dark days of winter come that fail to pass through that trying time safely. It is not always frost that causes the losses, but excessive damp, both natural and that caused by injudicious applications of water. Cuttings of zonal pelargoniums and fuchsias should be dealt with first and be inserted in a sandy loam, more leaf-soil being mixed with the loam for the benefit of the fuchsias, also for lobelia, verbenas, coleus, ageratums, heliotrope, etc., than for the zonals. Cuttings of the latter should be prepared one day and inserted the day following, being kept in a cool place in any shed or cellar in the meantime. The cuttings of all other kinds should be inserted as soon as they are prepared. Water all, immediately, to settle the soil around the stems. Place all in a cold frame, admitting more air to the zonal than to any of the other kinds. Some old plants of lobelia may be topped now with a view to lifting and potting in September. Sever the stems of the cuttings as shown at *a*; remove lower leaves, *b*; *c*, tiny cuttings; *d*, stem cut off; *e*, lower leaf, also. Insert the cuttings as shown at *f*, *f*. Later, take cuttings of calceolarias and marguerites and insert in a sandy bed in a cold frame as shown at *g*, *g*, ventilating a month hence at *h* or *i*, according to the direction the wind blows.

HARVESTING AND STORING POTATOES.

THERE should not be any lack of effort, this year, made to lift and store potato tubers in first-rate condition and in the best way possible to secure freedom from rotting during the winter months. Crops are, in many districts, below average, and the quality is not good in many cases; there are, too, lots of tubers irregular, and numbers are "grown out" owing to the arresting of their growth by the spell of hot weather and the recent dull, wet month. Instead of storing all the tubers in one big heap, whether under sheds and outbuildings or in potato clamps, form at least two heaps, one composed of the surplus early varieties and the whole of the mid-season ones, and one heap of the main-crop tubers. Where seed tubers are wintered at home it does not matter if they are exposed to the sun for several days, but not to rain. In the case of eating tubers it is quite different; one hour's exposure on a sunny day is quite sufficient. I never have seen tubers, when lifted and exposed to the air, turn green so quickly as they have this year. Eating tubers should not be exposed to rain; if wetted and stored they decay, and it is difficult to get them sufficiently dry again without using an open shed. Against all outside walls a thick layer of straw should be placed to guard against frosts; and, where stored in sheds with wooden floors, the tubers should have a thick layer under them, too. Outside clamps should be formed on a dry base, and the straw to be used must be kept dry in a shed.

PREPARING GROUND FOR FRUIT TREES.

THE wise cultivator will begin the work of preparing the soil for his fruit trees at an early date. Planting is, or should be, done in November, but the soil requires treatment long before that date. Fruit trees may be regarded as permanent occupants, and, once planted, they cannot be disturbed at will, like annual crops, in order to clean or improve the lower layers of soil. All this kind of work should be done very thoroughly before the trees are planted. First decide about the site, and, if wind protection must be provided, decide now as to its form and, if trees are to be used, plant them at a suitable distance so that neither their roots nor branches will interfere with the fruit trees in any way. Cupressus macrocarpa may be planted 50ft. or even 30ft. away on the south-west side, as they will bear cutting

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well, especially if this work be done three times a year, so that only young wood is removed each time. If the fruit quarters are to be extensive, and the site is an exposed one, then plant Pinus insignis about 100ft. away to the south-west. It does not matter whether the soil be sandy, medium, clayey or stony, it should be deeply trenched as soon as possible, and all weeds and foreign matter removed, but not the stones. The turf portion may be taken off, to be returned in due course in the form of a surface dressing, or it may be buried; in the latter case it should be covered about 16ins. deep. Light and gravelly soils do not need draining, but clayey ones do; and where plums, cherries, etc., are to be planted, lime should be freely added, soon, to the surface soil.

LIFTING AND PLANTING EVERGREEN SHRUBS.

WHERE evergreen shrubs are to be lifted and replanted this autumn the preparatory work should be attended to in good time, so that the subjects may be lifted and replanted quickly, not exposing the roots longer to the air than is absolutely necessary. Variegated box, gold and silver hollies, Ilex aquifolium sorts, gold and silver euonymus, elasaganus varieties, lavender, Lavendula spica, tree purslane, cupressus, conifers as shrubs, and ivies, also treated as shrubs, Choisya ternata, escallonia macrantha (both requiring sheltered positions), Kalmia latifolia, Olearia Haastii, veronicas, rhododendrons, laurustinus, arbutus, Garrya elliptica, osmanthus, pernettyas, Cotoneaster microphylla and evergreen oaks. These are the principal evergreens grown in the common garden and regarded as necessary in these days. In the first place, the holes should be made in readiness for the shrubs, not mere holes formed in a hard soil and just large enough to contain the roots, but wide and deep enough to contain them and plenty of fresh soil as well. If the soil is very dry, thoroughly saturate it in and around each hole, also the soil round the roots of the shrubs before the latter are lifted. Do this the day before the work of lifting is done; take pains with the work, do it well, removing as much soil as possible with the roots, and make the soil firm round them. The stems of choice specimens should be wrapped in wet cloths and moistened daily afterwards for one month.—G. G.

CRINUM POWELLII, A FINE HYBRID.

CRINUM POWELLII.

DURING the month of August a delightful feature of the herbaceous borders at Castleford, Chepstow, was two fine clumps of C. Powellii and C. Palbum; an illustration of the former appears in this issue of THE GARDEN.

C. Powellii is of hybrid origin, the parents being C. Moorei and C. longifolium. The flowers of the type are reddish-rose in colour, of fine texture and the spikes stand well above the foliage.

When established flower scapes are produced freely, and this beautiful crinum should be planted more freely in borders, as it is quite hardy in the South of England, in fact, it is not so tender as some would have us believe. A start should be made with good sized bulbs, and fairly deep planting is recommended during the spring months or even the end of May. They delight in a rich soil, and will pay for an annual mulching of partly decayed manure.

Our plants have been in their present position for twelve years, and have never had the slightest protection, but in colder districts it would be advisable to select a sheltered spot, where it is well drained, and to cover the neck of the bulbs with hay bands during a period of frosty weather.—T. W. B.

GALTONIAS.

AMONG plants that have suffered owing to the drought, must be included galtonias (Hyacinthus candicans), which, as a consequence, are not so tall. One exception may be noted in the case of bulbs which were left in the ground last winter, and therefore had a good start over bulbs planted in March. Am I correct in assuming that galtonias are less met with than they used to be, and that one reason is because, in a general way, bulbs decay if left in the ground the year round? Only in well drained, sandy soil is it safe to do so, and, even then, failure sometimes follows.—CLAREMONT.

ROOTING CUTTINGS.

WHEN rooting cuttings, especially those from hard-wooded plants, it is often a difficult matter to keep the soil in the proper condition as regards moisture. I have found the following plan to give excellent results: Two pots are secured, one of which is somewhat smaller than the other. In the bottom of the larger pot a good layer of broken crocks is arranged to secure free drainage. Now take the small pot and close the hole in this with a cork. Stand the little pot inside the big one right in the centre, so that its base rests on the layer of broken crocks. The space between the two pots is packed with a light sandy soil suitable for a rooting medium for the cuttings. In this soil the cuttings are inserted all round the band of soil which surrounds the little pot. Then, to complete, fill the small pot to about half its capacity with water. The porous nature of the pot allows the water to soak through very slowly. This is just sufficient to keep the soil in which the cuttings have been placed in an ideal condition, and it will never be too dry or too moist. Many cuttings which have proved most difficult to root by ordinary means do well when this simple plan is followed.—S. LEONARD BASTIN.

A DAY ON THE MONZONI.

THE Monzoni Valley in the Dolomites tucks itself just round a corner away from the main flood of August visitors. From Bolzano you take the motor up a dithery road to Carezza, with its palatial hotel and Liliputian green lake—such a little lake to lend its fame to so great a palace. Beloved Bozen and the Karer See do not yet recognise themselves in these new Italian names for most un-Italian places. Thence you descend to Vigo in the Fassa Valley, and there you part company with the throng of tourists and go up the sequestered Val San Nicolo, shrouded in pine woods. At a small chapel you turn to the right and cross rocky meadows till you see the Taramelli Hut perched ahead on a hillock of its own.

Thus far, directions are easy, with towns and roads and lakes and what not, with proper names, to help; but after the Taramelli Hut you follow the flowers. Linaria alpina holds your interest up the first stiff climb; Geum reptans and Ranunculus glacialis in peculiarly rosy form bring you to an admiring standstill at the foot of an enormous scree of red rocks, in every interstice of which they luxuriate; the Rhœtian poppy, Potentilla nitida and edelweiss draw your steps over a miniature pass; Ranunculus Seguieri encourages you along the edge of a white limestone *débris* slope to Thlaspi rotundifolium in a wilderness of rocks just beyond; you peer down upon Ranunculus parnassifolius growing in white silt that drops steeply down to a mountain tarn; you meander with the Primula glutinosa and P. minima and their puzzling hybrids across a hummocky moor; and on the pass itself are Eritrichium nanum, Myosotis rupicola, Androsace alpina, and Anemone baldensis.

The ascent from the Taramelli Hut to the pass takes you barely more than an hour: where else in all the Alps could one hope to walk straight up to sixteen first-rank high alpines, at the rate of one every four minutes? In 1924 the top of the pass was a desolation but for the flowers. The splinters of rock shattered by gunfire had added to the geological topsy-turvydom which attracted Humboldt and many another scientist to the Monzoni. The natural amphitheatre just below the pass on the near side was a circle of empty barracks 8,000ft. high, carved out of the hillsides, like a Roman arena surrounded by the stalls of the audience. On the far side were acres of barbed-wire entanglements (of rustless wire that was as new after even so many years), beneath which I crawled from one rounded cushion to another of Ranunculus Seguieri. Memory resurrects a picture of broken-down trenches and Ranunculus glacialis; of dug-outs and Primula glutinosa; skeletons of mules and Androsace alpina. I spent an arduous slippery hour swarming up the rocks on the right of the pass, which are here as smooth as the glacis of one of Vauban's forts, attempting to photograph the crannies full of Eritrichium and androsace (white as always in the Dolomites, not pink as elsewhere). My wife meanwhile sat below on the moss-grown roof of a dug-out, eating lunch, and, when at last I descended, pointed with "poor fool" look to the eritrichium thick on the level at her feet. But was it eritrichium? On hands and knees I peered at one tuft, which was myosotis, then at another, touching, which was eritrichium, but eritrichium with 1½in. stems, not prostrate as is usual on the silver fur. Some say that Myosotis rupicola is only legendary on the Alps; but here (as on the Pordoi) was something that, in the absence of a morphological botanist, was neither eritrichium nor Myosotis alpestris.—E. ENEVER TODD.

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COLOUR NOMENCLATURE

LAST year I wrote a few remarks on the question of colour nomenclature; but this subject is so important that, now that the planting season is coming around again, I must return to it. The other day I spent a very pleasant—though wet—day at the trial grounds of one of our best known seed raisers, and I was struck by the difficulty that this and other firms must have in describing the colour of the plants catalogued in their seed lists.

As tastes in colour vary almost with every individual, it is obvious that firms that specialise, particularly in annuals and herbaceous plants, have to stock as great a range of colours as possible in order to satisfy every customer. Some of the shades I saw I, personally, did not approve of, but these firms sell the seed, and so there is, obviously, a demand. It is impossible to train a colour taste, and, in any case, it would obviously be wrong to attempt it, for colour, above everything, is a personal matter, and as such should not be criticised.

It is curious that our colour vocabulary has not kept pace with the demand for new colour names. In these days of new inventions our vocabulary has been able to adapt itself either with new words or with fresh meanings for old ones. Broadcasting, the motor car, photography have now all got their own vocabulary—not so the colour names of plants. Botanists and raisers of new plants have been so lavish with their naming of new species and varieties, and are so proficient at coining new names, that it is certainly their duty to settle this extremely muddled question of plant colours.

It has been said that were new names invented no gardener would use them, but I maintain that they would have to, out of self-defence. Dyers have evolved their own names, but these are hardly suitable for ordinary use, as most of them are founded on the chemical constituents of a particular dye, and so are difficult, if not meaningless, to the layman.

Some society which is sufficiently strong to make its decisions felt—the obvious one is the R.H.S.—might convene a committee consisting of an amateur, a member of the trade, a botanist, a painter and a dyer, who could discuss each colour in turn, do away with anomalies, fill up gaps in our vocabulary, and, perhaps, issue a chart of each group of colours. It is obvious that some colours are more important than others. Blacks and whites could be left out; greens and greys would come low in the list; while those of primary importance are those centring on red—a loose name which means little—blue and yellow in order of importance.

If we take the red group, practically the only names in existence are blood red, usually misnamed; crimson, probably the most accurate; scarlet, also accurate, but could be subdivided; magenta, often misused, and in great need of subdivision; carmine, which is given in dictionaries as a beautiful red or crimson pigment—a poor definition; salmon, often misused; brick red, the same; and rose, pink and blush, which all want subdividing. If, instead of the eleven terms in existence, we had twenty-four definite names which everybody understood, much of the difficulty of colour names would disappear, for the reds are in the greatest state of confusion. The same applies to a slightly lesser extent in the case of blues and yellows.

Naturally, a chart of printed colours would be expensive to produce; but would a chart be necessary? Would it not be possible to find sufficient flowers whose colours are stable to supply us with names? Some are in use already, although in many cases the use of the flower name has given rise to difficulties. Buttercup yellow and primrose yellow are, however, almost perfect examples: both are common flowers and are stable in colour. Rose may have given rise to a definite picture many years ago, but is useless now. Gentian blue is also doubtful in meaning, owing to the introduction of so many new species. Presumably it was called after either G. verna or G. acaulis. Surely it would be less confusing if it was called verna or acaulis blue, which would bring a definite picture to every gardener's mind. In time, no doubt, the word yellow or blue would be left out, and the names buttercup, primrose or verna come into general use. In any case, if such a scheme were possible, it would do away with the common use of hyphenated names like rose-lilac and primrose-orange, which are extremely misleading and also are not standardised in any way.

By some such scheme as this, both the description of plants and the catalogue orders would be vastly simplified. This subject is of such importance to all gardeners, particularly when speaking about an ordinary plant that is not in general cultivation, that we should welcome correspondence on the subject.

E. H. M. C.

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

CRASSULAS, by R. Lloyd Praeger.

THE IMPORTANCE OF FUCHSIAS, by Edward Cahen.

DWARF BULBS FOR THE COLD GREENHOUSE, by H. W. Canning-Wright.

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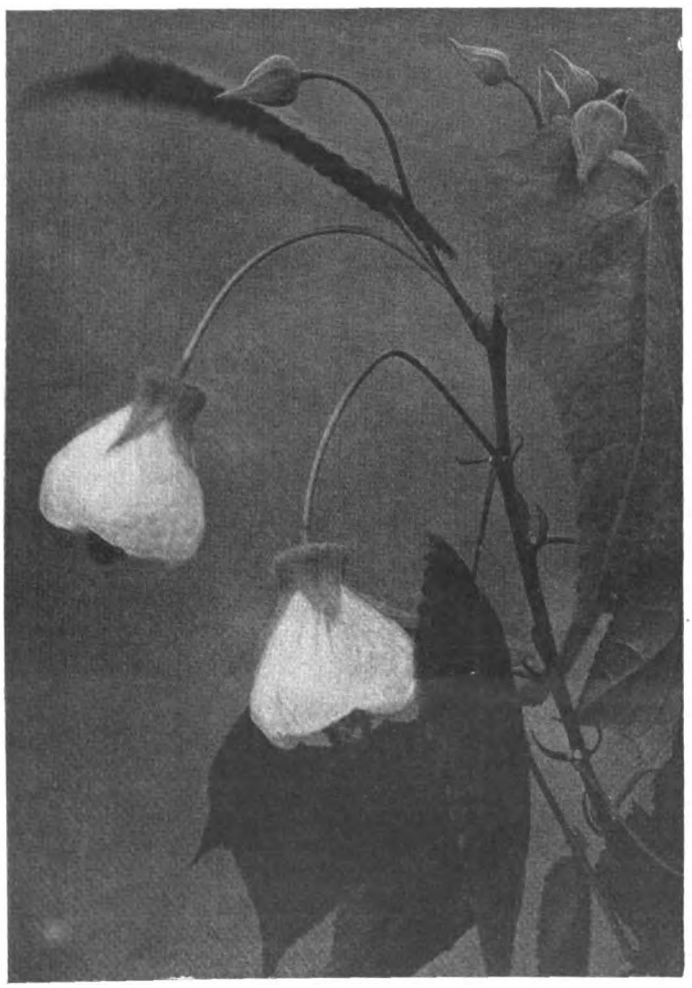
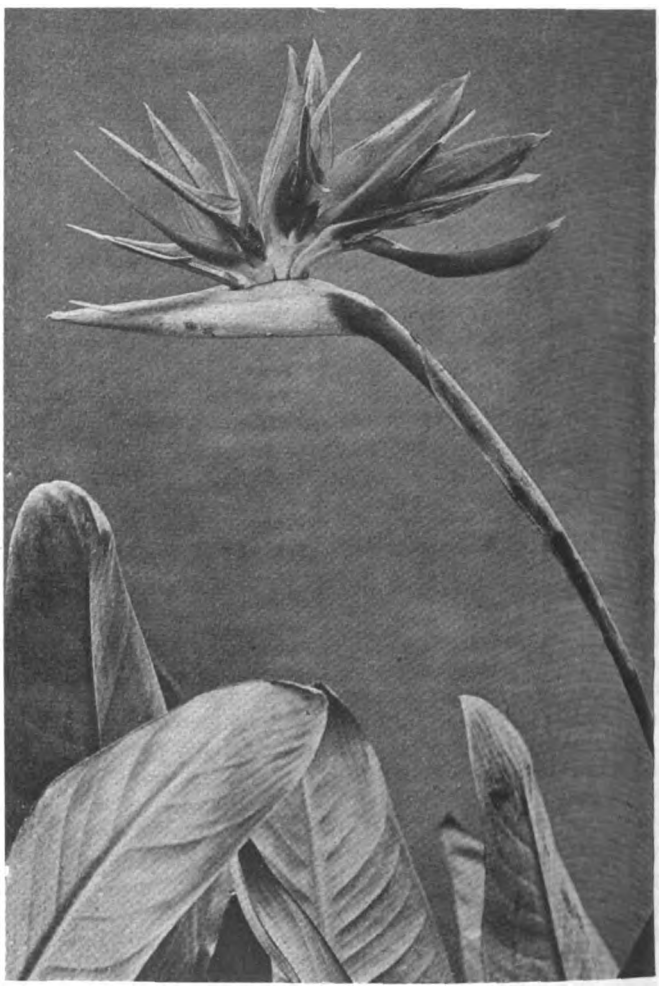
SOME FOLIAGE PLANTS FOR GREENHOUSE AND CONSERVATORY

PLANTS with ornamental foliage play an important part in the decoration of the conservatory and greenhouse, either as permanent occupants of the structure, as large specimens in pots and tubs, or planted out in the beds and borders. They are also of prime importance for furnishing the stages, where their chief function is to give variety and relief to the groups of flowering plants. There is a large number of plants well suited for this purpose, although it is doubtful if their value is sufficiently realised in most establishments. Most of them, as will be indicated, are easily propagated and grown, either from seeds, cuttings or division.



A FINE WHITE ABUTILON.



THE CURIOUS-LOOKING FLOWER OF STRELITZIA REGINÆ.

CORDYLINES, more generally known as dracænas, furnish quite a number of useful and beautiful plants for this purpose. C. australis and its varieties—often incorrectly listed as C. indivisa—in their smaller state prove very useful for the stages, and for house decoration; as they attain larger proportions they make handsome specimens for furnishing the beds and borders. A batch of seedlings show considerable variety in leaf character. The typical green-leaved forms are very useful, but the purple-leaved and variegated forms are most prized. Two purple-leaved varieties are known as purpurea and lentiginosa. There are also two with variegated leaves, *viz.*, C. Doucettii and C. de Grootii, the former with white stripes, the latter with white and red stripes. Other species and varieties are C. stricta, a slender and graceful species with green leaves, grown in small pots; it is very useful for conservatory or house decoration. C. Haageana and C. cannæfolia are also handsome and useful species, while C. Bruantii and its variegated variety are very largely grown for market. The large growing varieties, when they become bare and leggy, may have their stems cut half way through, just under the crown of leaves. If a ball of moss is bound round the cut portion and kept moist, roots should soon develop from the stem above the cut. The top may then be cut off and placed in a suitable sized pot, standing the plant in a warm, moist house until established. Cordylines are also propagated from "toes"—often wrongly called roots—but really underground stems. Old plants generally furnish a number of them. They should be cut off and laid in fibre, in a hot-bed, where they soon start into growth. The more slender species and varieties may be propagated in the same way, also by cutting the stems into short lengths, and placing them in fibre in a hot-bed, where growth should start from every joint.

LIRIOPE SPICATA VAR. VARIEGATA.—Grown in 5in. pots this plant is very useful for decorative work. It also, when planted out, makes a beautiful edging for beds or borders in the conservatory. It is easily increased by means of division, and should be grown perfectly cool, for if placed in a high temperature it refuses to grow and forms a hard bud on the crown of the plant.

ABUTILONS afford some useful plants for our purpose. A. insigne, with huge green, rugose leaves and long drooping sprays of crimson flowers, with darker veins, is very handsome for furnishing pillars or rafters. A. Thompsoni, with handsome leaves, mottled green and yellow, is very useful, as also is the smaller growing A. Savitzii, with green and creamy white leaves. The slender-growing A. vexillarium var. variegatum is ideal for

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furnishing pillars or rafters, as also is the hybrid A. Milleri, both of them also flower very profusely.

ACER JAPONICUM VAR. AUREUM, and all the beautiful varieties of A. palmatum, are beautiful for a cool house, and they can easily be brought on early by gentle forcing, as also can A. Negundo var. variegata.

AGAPANTHUS UMBELLATUS VAR. VARIEGATUS is a small growing variety, with white and green banded leaves, that is very pretty and easily propagated by division.

AGAVE AMERICANA and its varieties are too large for the ordinary greenhouse, but have their use in the large conservatory; while large plants are handsome for standing outdoors during the summer.

ALBIZZIA LOPHANTHA, with its graceful foliage, is very useful for decorative work, and is easily raised from seed sown in a temperature of 60° during February or March.

AMARANTHUS BICOLOR, HENDERI, SALICIFOLIUS AND TRICOLOR are all annuals with beautifully marked foliage. They are easily raised from seed sown during March and are very useful for the summer months. Free exposure to light is essential to develop their bright colours.

ASPARAGUS SPRENGERI PLUMOSUS and its varieties, A. decumbens and A. virgatus, are all easily raised from seed sown in a warm house, and are all invaluable for grouping or for supplying cut sprays for decorative work, while A. Sprengeri and A. decumbens make beautiful basket plants.

CANNAS, especially the dark-leaved varieties, are very handsome when grown into large specimens.

CENTAUREAS RAGUSINA (CANDIDISSIMA) GYMNOCARPUS and CLEMENTEI are all plants with grey foliage, much used for summer bedding. They are, however, equally useful for the cool greenhouse, and are all easily raised from seed.

COLEUS in many varieties are so well known that they only require passing mention.

COPROSMA BAUERIANA VAR. VARIEGATA is very beautiful when well grown, and is propagated by means of cuttings, which are best rooted in a close case with good bottom heat.

CYPERUS ALTERNIFOLIUS and its variegated variety are very useful, the latter being best increased by division, the former being easily increased by the whorls of leaves being inserted as cuttings.

EUCALYPTUS GLOBULUS and E. PULVERULENTA, are both easily raised from seed, their glaucous grey foliage rendering them very handsome for decorative work. E. citriodora, although green, is worth growing for its fragrant foliage.

GREVILLEA ROBUSTA and JACARANDA OVALIFOLIA SYN. MIMOSÆFOLIA, with their slender, graceful habit, are ideal for decorative purposes, and are easily raised from seed sown in a warm house during February.

FICUS ELASTICA and its variegated variety are popular for greenhouse and house decoration, while F. macrophylla is deserving of more general cultivation, as it branches freely and is not such a heavy looking plant. Both are easily propagated by means of cuttings placed in a warm propagating case.

LOMATIAS FERRUGINEA and SILAIFOLIA are both beautiful foliage plants, either grown in pots or planted out in a cool greenhouse. The latter is a low-growing plant with finely cut foliage.

ROUPALA POHLII SYN. CORCOVADENSIS.—This handsome plant is generally regarded as requiring stove treatment, but it stands perfectly in a cool greenhouse, in fact, the writer has had plants kept in perfect condition for two years in an ordinary living room. It is very useful as a small plant for decorative work, and may also be grown into a large specimen. The young growth, covered with a rich brown tomentum, being very beautiful. This plant is propagated by means of the smaller side shoots, plunging the cutting pots in close case with plenty of bottom heat at command. The wood is very hard and cuttings usually take several months to root.

RICINUS COMMUNIS, the different varieties of the castor oil plants, are easily raised from seed, and prove very useful for furnishing during the summer months,

STRELITZIA REGINÆ.—This South African plant is very handsome when grown in large tubs, but is seen at its best when planted out, when its noble foliage will attain a height of 4ft. to 5ft. In addition, there is the charm of the extraordinary looking flowers in orange and dark blue, which are produced over a long period.

There are many other plants suitable for our purpose which space forbids me to mention, but from the foregoing it will be seen there is no lack of beautiful foliage plants to choose from.

J. COUTTS.

NOTES FROM FLORAIRE

THERE are, among the Martagon group of lilies, some members with yellow flowers, such as LL. pyrenaicum, Jankæ and albanicum. The first is well known and grown in every alpine garden. The two last come from the Balkans and are seldom seen in cultivation. L. Jankæ grows in the alpine meadows on the summits of Bosnia, Serbia, etc., and is a fine plant with bright yellow flowers, smaller than those of L. pyrenaicum and much deeper in colour. It differs still more from the latter in its richly striated petals, its red anthers and its leaves, which are shorter and less numerous. It was described by Kerner in 1877 (*Oest. Bot. Zeit.*). The dimensions of the whole plant are modest, and never so large as those of L. pyrenaicum.

Lilium albanicum (*Griseb.*) differs by its yellow anthers, and its petals, which are pure yellow and never striate or punctate. I cannot understand how the "Index Kewensis" identifies these two lilies as synonymous with L. chalcedonicum, since they differ from it considerably even at first sight and require quite a different method of culture. They flower, too, at different times of the year, *i.e.*, May-June; while L. chalcedonicum does not flower before July.

PINGUICULA LONGIFOLIA AT FLORAIRE.

Last April we had here some beautiful flowers of the rare Fritillaria Moggridgei. It is a splendid form of F. tubæformis, having large lemon yellow pendent flowers, with brown spots arranged as in a mosaic. They are much larger than those of F. Meleagris. It is seldom seen in gardens, and is even rare in nature, growing in the eastern part of the Maritime Alps, where it is found in association with F. tubæformis.

Pinguicula longifolia is the largest flowering species of this genus found in Europe. It has long yellow leaves, which can be seen from afar, and large sky blue flowers, bigger than those of P. grandiflora, and with a large whitish blue spot in the centre. It is also an uncommon plant, and grows here and there in the Pyrenees, but very seldom in the Maritime Alps. I found it abundantly in the damp crevices of the Ordesa Valley in the North of Spain (centre of the Spanish National Park

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at Arrazzas), in the Pyrenees, on the north side of the rocks forming the Cirque de Gavarnie (Hautes Pyrénées). It is certainly the best of the pinguiculas.

The aquilegias were good this year. A. alpina, with its very big sky blue flowers (whitish petals) and its finely divided and small foliage, was beautiful in June and July. A. pyrenaica has smaller and deep blue flowers with rich gold anthers and small round leaves. The first must be grown in shady places, while A. pyrenaica requires a sunny situation. A. glandulosa is the gem of the genus with its erect, deep sky blue flowers, which are greatly enhanced by the slightly glandulous leaves. The seeds, instead of being shining black, are unpolished.

I have often been asked about the natural habitat of Daphne rupestris = petræa. This plant always grows in steep limestone walks facing east and south, and at Floraire, where it is luxuriant and flowers abundantly, it grows in limestone walls. We have it at its best in the tufa wall, where it is quite at home, but it never seeds. It does better on its own roots than when grafted.

We have great trouble with Campanula Morettiana and C. Zoysii, which are eaten by slugs. These pests come from miles off to eat these rare herbs, which they like better than anything else; but, curiously, they do not touch C. excisa, the leaves of which seem to be more tender than any of the others. C. excisa, which comes from the Simplon range, is peat-loving, of course, or ought to be. But, here, it does well everywhere, asking only for a wall and sun. It seeds abundantly.

Iris Cengialti is a very dwarf and graceful iris belonging to the aphylla group. It covers a large rocky area on Monte Cengialto, near Roveretto in Tyrol, adorning it with its large deep sky blue flowers, flushed with purple. The beard, instead of being white as in I. aphylla, is orange yellow, and the plant does not exceed, in its natural state, more than 6ins. in height. It is a good iris for the wall and rockery.

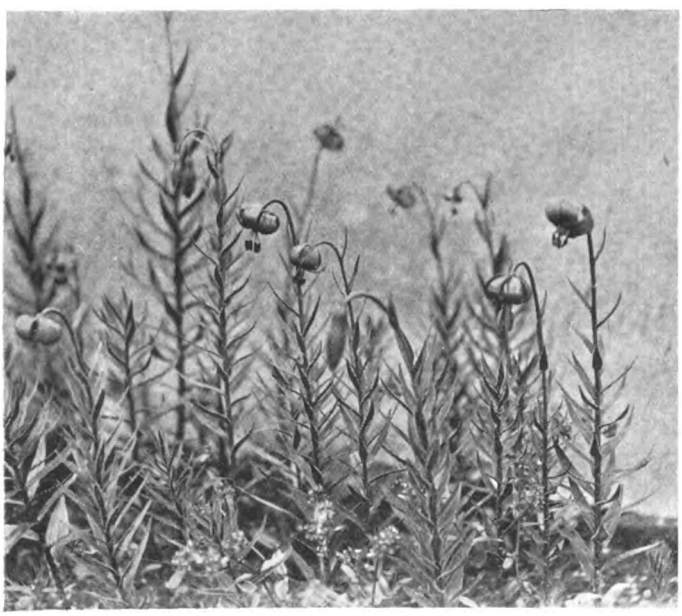
GENTIANA PYRENAICA NEEDS SUN AND A MOIST POSITION.

I. rhætica was not known to me until 1915, when the Hon. Charles Rothschild wrote me to call my attention to it. It was described by Brugger of Chur (1878), and is an Engadine form of sambucina. I went to the Low Engadine, near Rhemus (at 3,600ft. elevation), to find it, but could not reach the high rocks where it grows and from where it seems to defy the poor botanist who admires its charms. Higher up there is the imposing ruined castle of Rhemus, destroyed in 1475, and I suppose the iris, which belongs to a group of east European origin, was perhaps grown by the ladies of the old castle 500 years ago, and that it is the only existing plant of their gardens. The fact remains that I. rhætica is very near to I. sambucina, from which it differs by its broader leaves, its larger flowers (blooming three weeks before I. squalens and I. sambucina), its sweet scent of Dianthus superbus, and its dwarfer growth. The peasants who live at the foot of the rock were able to get a little plant for me, and now it is well represented here.

Gentiana pyrenaica does not seem to be difficult to grow, but needs, of course, to be watered from below, as we do with G. bavarica and G. Rostani. It has flowered here, as can be seen from the illustration, but requires sun and a wet situation.

One of the best pictures in our garden at present are the tufts of Linum campanulatum mixed with Aphyllanthes monspeliensis. These two colours are very beautiful when placed together. Both plants want, of course, a dry and sunny situation and light soil.

Floraire, Geneva. H. CORREVON.



LILIUM JANKÆ. A SPECIES FROM BOSNIA.

THE GRAPE HYACINTHS—II

ONE hesitates to put in print one's disagreement with what is written in such a standard work as Bailey's "Cyclopedia of Horticulture," but I cannot see eye to eye with the statement that except Muscari botryoides, "all the other kinds described are fancier's plants, interesting chiefly to skilled amateurs." It is true that there is no elegans in the list, and that Heavenly Blue is omitted, but neglectum, racemosum and Argæi are sufficient, to my way of thinking, to prove the inexactitude of the sentence quoted. Muscari may equally well be grown by the veriest amateur as by the skilled fancier; or as well by the seeker after decorative effect, as by one whose aim is to have in his garden something out-of-the-way, or of botanical interest. When, however, Bailey says "the group needs botanical revision badly," I agree with him down to the ground. It does, indeed. It is this muddled state of affairs which has decided me to adhere to the catalogue names, which I have found in the Dutch lists of van Tubergen and van Meeuwen. No other list, English or Dutch, contains anything like as many. The names are given in alphabetical order. The old botryoides is not included for the simple reason that in my garden it is all over the place; nor have I forgotten its beautiful white variety, botryoides album, and its pale pink one, botryoides carneum. I am always in two minds about this last. On the whole I think I class it as one for Bailey's "skilled amateur." It is on a par with Scilla sibirica azurea, which to me is interesting, but washy. Sibirica alba, on the other hand, is a real gem, and as is said of so many good things, ought to be more widely grown than it is.

Propagation is effected either by off-sets or by seed. As I said in my previous article, there seems to be an opening for someone to take the family up and raise seedlings. The species and varieties other than moschatum and pallens would probably cross if planted near to one

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another, or it may be that some reputed species are not species at all and would produce from seed interesting variations. How else came elegans, which originally was sent out by Max Leichtlin? or my very taking pale blue Turquoise? or it may be the variety cracked up in "My Garden in Spring," or a more recent comer to Mr. Bowles's famous garden, the giant form of lovely colour which came to him from a Cornish garden?

And now for the list.

ARGÆI.—Late flowering, dwarfer than the majority, very dark blue bloom, but not quite as deep in colour as neglectum; white tips to blooms, abortive flowers at the top of the spike paler than the others, faint scent.

ARMENIACUM.—Late flowering, deep blue, fine and rather scanty foliage, spicy scent like Heavenly Blue.

ATLANTICUM.—Slender foliage, pointed thin spikes, rather like polyanthum, pleasantly scented, Bailey says the trade make Argæi and atlanticum to be synonymous, and that Baker could not distinguish atlanticum from neglectum.

COMOSUM.—A very curious form with the top sterile flowersborne on long pedicels, which gives the plant a sort of startled, hair-stand-on-end look, the last of my collection to bloom, in perfection in the third week in June, fertile lower flowers are a curious olive colour and the sterile top ones a pale washy violet.

COMOSUM MONSTROSUM.—The famous feather hyacinth, all flowers turned into long slender filaments of a pale lilac colour, excellent for growing in a cool greenhouse, about 12ins. to 15ins. high; there are several synonyms, *e.g.*, plumosum or monstrosum with the comosum dropped, late to flower.

CONICUM.—Deep blue with conspicuous white mouths to the bells, shade like elegans, what scent there is is not very nice and quite distinct from Heavenly Blue, which is said to be a form of this species.

COMMUTATUM.—Very distinct, much dwarfer than any other and the flower spikes small, a pretty Uppingham blue, looks the very thing for a rock garden, faint scent.

MUSCARI HEAVENLY BLUE.

ELEGANS.—Probably a seedling distributed by Max Leichtlin, darker blue than racemosum, exceptionally free, not much scent, a *most* desirable variety.

HEAVENLY BLUE.—Probably a conicum seedling, delightful shade of blue, long pointed flower spikes, strong clove scent, "too well known to need any description."

HEAVENLY BLUE SEEDLING TURQUOISE.—Came by chance in a bed of Heavenly Blue in my garden, an exceptionally lovely shade of turquoise blue, so I called it Turquoise, delightfully sweet, most distinct.

HELDREICHII.—Large individual bells of a pretty medium blue with white mouths, not many on a spike, rather miserable looking owing to the sparseness of the bells on a spike.

LATIFOLIUM.—Most distinct, only one leaf, tall flower spike, a great contrast between the top and bottom flowers in their shade of colour.

MOSCHATUM.—The musk hyacinth, very sweet, four or five spikes in a vase diffuse a powerful scent like a poetaz narcissus, flowers begin life as a curious greenish purple, getting quite a yellow look with age, a late frost affected the spikes, they bent over and never regained their upright position.

MOSCHATUM MAJOR.—As I have it, it was indistinguishable from moschatum.

MOSCHATUM FLAVUM, or MACROCARPUM.—The flowers begin life as in moschatum, but in the end turn a real yellow. I was much impressed with a bed saw in Haarlem at van Tubergens this spring.

NEGLECTUM.—Very dark blue, quite as dark as paradoxum, white mouths to bells, sweet with a scent of its own; as a matter of fact hardly any two in my collection had the same scent.

PALLENS.—Totally unlike any other, flowers open-shaped and of a dirty white colour, much crabbed because the bottom flowers are over long before top ones open, best known as Bellevalia romana. Is it a Muscari?

PARADOXUM.—Very late, extremely dark, sugar-loaf flower head to spike, hawthorn scent, no white in bells, very distinct.

PARADOXUM ALBUM.—A so-called white, really a greenish cream, best part of it its nice hawthorn scent, looks its best at night, whereas all the blues look very much their worst then.

POLYANTHUM.—So mixed that I never decided upon the true one. I think it is one with a long pointed flower head to the spikes.

RACEMOSUM.—The first to bloom, so very sweet, very dark, but paler than elegans, an excellent muscari. Very free.

VULGARIS CŒRULEA MAJOR.—Probably the freest flowering of all, very dark blue bells with most conspicuous white mouths, the plant looks as if it were in mourning, scentless, top flowers of spike paler than the others, late to bloom.

So ends my list. It will be gathered that some of the above are of no use for garden decoration, but, on the other hand, are of much botanical interest. "You pays your money and takes your choice." I think I would go for elegans, Heavenly Blue and racemosum as a start if I had no grape hyacinths in my garden, and cast longing eyes on Turquoise. If I had glass, comosum monstrosum might be included, while if I had a rock garden, commutatum would be bought.

JOSEPH JACOB.

THE ONE-LEAVED M. LATIFOLIUM.

THE SPLENDID M. ELEGANS.

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NOTES OF THE WEEK

DOUBLE AURICULAS: ONE OF THE OLDEST OF DOUBLE PLANTS.

LOVERS of uncommon and out of the way varieties of favourite flowers are frequently on the look-out for forms which they have not previously grown but which, apart from their rarity, possess points of beauty to their eyes. Such are the double auriculas, although the true devotee of the auricula despises them as "monstrosities" and not to be spoken of in the same breath as his favourite stage or alpine auriculas with their refined single flowers, so exquisite in every way. Yet those who have grown these double varieties seem to acquire an affection for them, and, if they should lose them, regret their disappearance from their gardens. Although difficult to procure from the nursery trade, there are a fair number of varieties in cultivation, and a brief mention of them may be of interest. Before discussing the varieties, the question of culture may be mentioned. This is not difficult either in frames or in the open, but care should be exercised to propagate the plants from offsets annually, or, at the very latest, every two years so as to be sure of having spare plants to take the place of any which may be lost. These double auriculas have been known for many generations, and mention is made of one double one in Rea's "Flora," published as far back as 1665, in which he gives a brief description of a yellow auricula with double flowers. I do not think the double yellow one of the present day is a direct descendant of Rea's plant, as the latter had only four or five double flowers on a short stalk, while that now in cultivation with yellow blooms has a greater number on a fairly vigorous stalk. In addition to the double yellow one now in cultivation, there is a very dark coloured double sometimes called the double dark crimson and sometimes the double black one. It possibly lacks brightness. There is a curiously pretty double green auricula and also a double grey. The double lavender auricula is quite pleasant in its colour, and the double blue has many admirers among the growers of these interesting flowers. Were a demand to exist for these flowers, no doubt there would be a considerable accession to the number of varieties, as the methods adopted for raising new double primroses would doubtless be effectual with the auricula as well. There is a very good illustration of one of the double auriculas in Dr. Macwatt's valuable work on "The Primulas of Europe" opposite page 153.—S. ARNOTT.

THE OLD-FASHIONED DOUBLE AURICULA WHICH MANY GARDENERS CONSIDER SO CHARMING.

POULTRY IN GARDENS.

Advice for those who have no space for hens other than garden or orchard.

IT is an old adage—hens are poor gardeners. Undoubtedly, if not kept under control. But this fact should not prevent their being kept in properly constructed runs, with wire netting sufficiently high to keep them from flying over, and housed in a neat, though not necessarily expensive erection. A factor which should induce gardeners to keep fowls is that ordinary farmyard manure and, indeed, horse manure as well, is becoming increasingly difficult to obtain even in country districts. All that is necessary is a board for the droppings fitted under the roosting perches and scraped daily, the board sanded and the manure stored away in a dry place for future use.

It is unwise to spread it on the land in a fresh state, especially during the growing season, as its newness is too hot for roots in activity. It does less harm to dig it in in winter, but even then it must be remembered that much of its valuable property is lost and washed away before it is taken up by plants. It really should be kept in wood boxes in a potting shed or other outhouse and crushed when dust dry, then kept in air-tight canisters. The French reduce it to a powder and call it "pudrette," in which form it is evenly distributed to active vegeta tion. In this form it is as good as, and better than, some of the advertised patent fertilisers now on the market. I infinitely prefer it to canary guano, which it so much resembles.

That poultry are welcome in the orchard or portion of the garden set apart for growing pears and apples goes without saying, since in addition to the potent manure they drop they are ever on the look-out for insects, which would otherwise find a lodgment in the crevices and bark of the trees. With regard to the so-called unsightliness of hens about a garden, surely this is more apparent than real, as many methods are at the disposal of the cultivator of the soil to minimise, and in summer altogether obliterate, them from view, viz., for summer blooming I suggest tall nasturtiums, Ipomœa coccinea, Tropæolum speciosum (if you can get it to grow) or even sweet peas up the wire-netting; and for permanency a hedge, say, of Cupressus Lawsoniana or beech trained to grow erect and ultimately to reach 7ft. in height. These and others suggest themselves as being not only a means of hiding the fowls from view, but of affording no little protection and shelter to both poultry and garden. Briefly, points to remember are: Stick to one breed; they look infinitely better than a mixed piebald lot, and if the run is small, do not go in for too many birds. White Wyandottes or Buff Rocks are hard to beat for confined runs because of their hardiness, docility and winter-laying qualities of large eggs. They are heavy birds, consequently are not "high flyers" and never even make the attempt to mount the 5ft. wire netting.—E. E. P.

TWO KINDS OF GARDENER:

The Decorative and the Individualist.

GARDENERS are as various as the gardens they make, and no two gardens are quite alike, but all gardeners, or nearly all, incline to one of two types, sharply contrasting in their aims and only agreeing in their more or less tolerant contempt for one another's ideals. One type appreciates flowers in the mass, the other appreciates them individually.

The first type uses flowers as pigments with which to paint designs in glowing or subtle colours. Form is supplied by fastigiate yews, rounded masses of evergreen shrubs and the aspiring lines of hollyhock and delphinium. His garden is thus an extension of the house, in which the decorative idea is carried out on a larger scale and with more frequent changes; it is one coherent picture, or it may be a series of pictures, separate from one another like the rooms of a house.

For the other type of gardener each plant has an individual beauty, and though he may seek to enhance this by careful choice of setting or background, he does not mass his plants into any extrinsic design, and if any design appears in his grouping, it will be an extension of the design that is contained within the plant itself. His garden is, therefore, like a collection of miniatures, mostly unframed, and may seem uncomfortably incoherent, or even disorderly to the other type of gardener.

The two types of gardener run easily to extremes. The first reached his zenith, or nadir, in the heyday of bedding out, when a long-lasting blaze of colour was the ideal and the plants were dug up as soon as their flowers faded, to be replaced immediately from the battalions kept in reserve. The expense of this style of gardening, and a stigma of vulgarity that it naturally acquired, combined to suppress it. But it soon burst out in another form and is still with us, for many modern herbaceous borders are about as restful as a firework display and often less coherent. Dorothy Perkins and the Crimson Rambler played cheaply into the hands of the garden decorator, who drapes the garden with them as easily as you may festoon a room with cut paper at Christmas time, and with much the same effect. Broad drifts of colour have this drawback, that if they are used unskilfully they produce an actively unpleasant impression, while the effect of many colours set together, even though haphazard, is almost always pleasant. For this last reason a cottage garden seldom fails to make a beautiful picture, though it may be a jumble of colours and planted with no thought of design.

The extreme gardener of the second type makes a collection of plants rather than a garden, and the area round his house is disfigured with hand-lights, panes of glass and inverted jam jars. Rare alpines flourish on heaps of road metal or in tin baths filled

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with broken slate, and delicate woodlanders are screened from the wind by strips of linoleum. The collection is overgrown with weeds, for which he has a morbid tolerance, alleging that plants like company, and low company as well as any other, so that the visitor may be surprised to find the stylistic beauty of a regalia iris set off by the dowdiness of groundsel or chickweed. The extreme type of all grows plants only because they are difficult and loses interest in them when they begin to flourish.

Both types insist that they grow plants in a natural way, and this is certainly true; but they grow different kinds of plants. Flowers may be divided, among other ways, into bee flowers and butterfly flowers. The bee prefers a plant with flowers set conveniently close together, growing in large colonies and provided with any kind of scent that will distinguish flowers that might otherwise seem alike to its short-sighted eyes. The butterfly blossoms, on the other hand, are each of them an impressionistic sketch of the scented and painted butterflies themselves, who use them less in order to secure a meal than as places for rest and dalliance.

The decorative gardener tends to prefer the bee flowers, and the individualistic gardener the butterfly flowers, so that a blind man, on a fine summer day, might distinguish between characteristic gardens of each type by his sense of smell and hearing.

The two types of gardening are by no means incompatible, but may be perfectly combined, and they will always be found interacting in the most satisfying kind of garden, the garden that appeals most quickly and surely to the average visitor who is neither an extremist nor altogether unregarding.—F. A. H.

TWO FINE DEUTZIAS.

OF the many forms and species of deutzia in cultivation, the two I have found most satisfactory are:

Deutzia Wilsoni.—A shrub about 6ft. high. Leaves 2ins. to 5ins. long, ⅛in. to 1½ins. wide; young branches are slightly scurfy at first, becoming dark reddish brown, the bark peeling. Flowers white, in corymbose panicles, each flower about 1in. across. Native of western and central China, introduced by Wilson about 1901. This species is a handsome shrub of the discolor group, free-flowering and quite hardy.

Deutzia corymbosa.—A shrub of about 9ft. high, of vigorous habit. Leaves ovate with long tapered point, 2ins. to 5ins. long, 1in. to 2½ins. wide, green on both sides. Flowers crowded in a corymb 2ins. to 3ins. across, each flower ⅝in. in diameter. Petals white with large conspicuous yellow anthers. The flowers have a hawthorn-like scent, and form compact full clusters on the previous year's branches, in July. It is one of the hardiest deutzias I have.—ANDREW HARLEY, *Fifeshire*.

DEUTZIA CORYMBOSA IS ONE OF THE HARDIEST OF THE GENUS.

DEUTZIA WILSONI, ALLIED TO D. DISCOLOR.

GARDENING IN FORD "E" BARRELS.

WHY Ford "E" barrels and what is Ford "E"? I can hear you asking. The answer to the first question is because they are cheap, you can pick them up at almost any garage for a matter of five shillings or so. They are stoutly made to contain a particular lubricating oil, used by all Ford drivers, which answers your second question.

When you have caught your barrel, draw a line round its middle very carefully so that it meets exactly, then slowly but surely saw along this line, until the barrel is sawn asunder. This, I may say is none too easy to do, but it is not impossible. Then bore four or five nice half inch holes in the bottom of each tub so formed. Place some bits of broken crock on the bottom for drainage. Make up your mind where you want your tubs and place them on four half bricks, so that they are exactly level. There is a certain finality about this operation, simple though it may be, for when you have filled them with good mould the tubs are too heavy to be moved about with any ease. You will then find yourself in possession of two nice gardens and can commence gardening at once.

You will be surprised at the number of flowers which will flourish in these small, improvised gardens. The plants must, of course, be chosen in relation to the position of the tubs. Low growing plants for open positions, taller ones for each side of a doorway or to stand against a wall. Nearly all the year round you can have flowers in your tubs, but there is a little difficulty about the winter months, for the tubs are too big for box or bay clipped into formal shapes. The relative size of the tubs and trees does not give a pleasing proportion. Rosemary, however, looks quite well, if nicely grown so that the plants hang slightly over the edge of the tubs. Its fragrant spikes are always a joy winter and summer alike.

It is best, however, to plant the tubs ready for the spring with either bulbs or plants that will come into flower as soon as the returning sun warms up the earth. Wallflowers are admirable for this purpose and some delightful effects can be obtained by selecting the colours carefully. Polyanthus planted between them often lends additional charm. Or we may plant aubrietia of various shades to fall over the edge of the tubs and clothe their sides with a mantle of purple and mauve. Of bulbs we have plenty of choice. Blue hyacinths with forget-me-nots between, trumpet daffodils or any other of the narcissus family. Plant them thickly so that they hide the soil in the tubs when in flower. Yellow daffodils emerging from a mist of blue forget-me-nots is another suggestion.

If the tubs of wallflowers are standing against a wall on either side of a doorway, sweet peas raised in small pots may be slipped in between the plants, which will afford them a little protection, while they are settling into their new quarters. Then, when their protectors are removed in due course, they can begin to climb up the sticks which can be so placed to form a bower over the doorway. Evelyn Hemus is an excellent sweet pea for this purpose, being a vigorous grower it will soon form an archway round the door. You will be surprised how sweet peas thrive in a tub and at the quantity of flowers they will produce, if you keep them picked off regularly.

When the spring bulbs are over and have been removed from the tubs, you can put in proper bedding out plants. A standard fuchsia surrounded with ivy-leaf geraniums of all shades, pink, red and mauve. You can substitute a standard heliotrope for the fuchsia with equal effect.

The impression of perfumed luxury may readily be obtained by planting the tubs with heliotrope and scented oak-leaf geraniums.

Massed antirrhinums of chosen shades make a splendid splash of colour. You must grade them carefully so that the tallest are in the centre, the dwarf ones on the outside.

An unexpected success was gained by planting a couple of tubs with double annual larkspurs of all colours. They grew to a great height, some three or four feet, and then burst into bloom. The effect was enhanced by the dead white walls of the house, against which the colours showed up to perfection. Such colours too, rose, white, cream, purple, blue, lavender and violet. Many of the individual flowers rivalled their

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cousins the perennial larkspurs of the borders. Between the larkspurs Chinese yellow violas clothed the bare earth of the tubs.

There are endless possibilities for the gardener in Ford "E" barrels, endless experiments to be tried. Some will be successful, and, no doubt, some will be dismal failures, but all will be of interest.—EDWARD CAHEN.

POTTING SPRING-FLOWERING PLANTS.

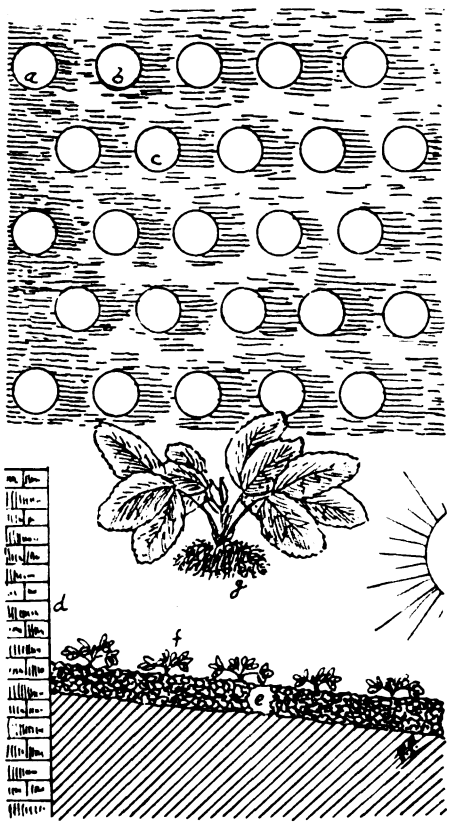
THERE are many kinds of plants deciduous, evergreen, and those that die off to the crowns, such as spiræas, that may be potted during the autumn and yield abundance of flowers in the spring for filling greenhouses and conservatories. Those that are to be subjected to a slight forcing temperature are all the better for having become established in pots first, that is, grown in the pots quite one year before they are introduced into a forcing heat. The more recently potted ones, those that have flower buds practically matured when the plants are potted—those that do not possess flower buds at that stage are useless—yield a spring harvest of blossom, but in doing so are much weakened, some being killed or rendered worthless and others requiring a year's care to regain their normal health. The plants include rhododendrons, azaleas, etc. But there are others, very beautiful, which can be managed by an inexperienced cultivator. Spiræas: S. japonica, white; S. palmata, deep rosy purple; S. palmata elegans, pale rose. The leaves should die down naturally, the stems being cut off, not pulled out. Pot firmly in loam and peat or leaf-soil. Solomon's Seal is another root that may be similarly treated. Other kinds are hydrangeas, H. paniculata, being very attractive; Hibiscus syriacus, the Guelder rose, daphnes, lilac, flowering currants, weigelas and the forced leaves of Prunus Pissardii to associate with the flowers. When any of these subjects are potted the pots should be plunged in ashes or sand on the north side of a wall and placed in a moderate heat as required after Christmas.

THE FINAL POTTING OF PLANTS: AN IMPORTANT OPERATION.

THE final potting of plants that are to remain in the greenhouse, conservatory, pit or frame or be plunged to the rims of their pots in ashes outside, during the winter months, should take place, as soon as possible after August comes to a close. In some instances it is better policy to leave plants rather pot-bound through the winter, than shift them to larger pots very late in the year. In cases where such plants are retained in the smaller pots a little judicious feeding will do them good during October and again after mid-January. Plants that have not fairly well filled their pots with roots by the early part of September should not be re-potted before January or February. There is an exception to this rule, and it applies mainly to cinerarias, primulas and calceolarias. If any of these plants are left in a pot-bound state through the winter months—to the end of February, for example—they will flower prematurely, yielding small trusses and flowers and proving very unsatisfactory. Unlike some kinds of plants, those I now specially refer to continue to produce young roots, practically throughout the winter. But it is advisable to make the shift from one pot to another as small as possible, so that the plants are kept progressing. Then, about the end of February, another re-potting may be very beneficial. The final potting of the winter-flowering batches should take place now. Strawberry plants, too, that are to be forced, should be finally potted as soon as possible.—G. G.

PLANTING NEW STRAWBERRY BEDS.

DIRECTLY the young plants possess sufficient roots to enable them to be detached from the parent plants they should be planted in their permanent quarters, after being placed on the north side of a wall or fence for one week. In this position they will not droop so much as in an open one and will soon recover from the check. Syringe the leaves twice on hot days and water to keep the soil nicely moist in the pots. Having prepared the soil beforehand by deeply digging it and adding half-rotted manure, put in the young plants while the soil is fairly dry, if possible. As strawberry plants are not, generally, profitable after the second year's crop has been gathered, there is no need to plant at a great distance apart, as is so often advocated. Make the surface soil rather fine to enable the workman to do



the planting easily and well. Plant 18ins. apart in rows, also 18ins. asunder, as shown in the sketch: *a* to *b* in the rows and *b* to *c* from row to row. These hints refer to plants grown in the open quarters. For an early supply of berries and where a suitable border exists, such as the one shown in front of a wall marked *d*, the border should slope gently to the south, and the surface soil, *e*, be well enriched with manure. Then plant 1ft. apart in rows 18ins. asunder, and make provision to protect the plants, *f*, from frosts. The letter *g* shows a really nice, well rooted plant.

PROPAGATION OF SHRUBS AND IVIES BY CUTTINGS.

OF course, this is a big subject, and would require a long article to make all details clear; so I will only refer to a few that will be helpful to those, inexperienced, but desirous of rooting a few in their own gardens. The best site is one facing due north on that side of a wall or fence. Around the base of each cutting there should be some sand, so, if the soil is clayey, it will answer the purpose if sufficient sand is placed around the base of the cutting. The soil should be well cleaned and have a slightly sloping surface so that water will not lodge there. For all except very large-leaved shrubs, the trenches may be 1ft. apart; but I prefer 18ins., then one can kill the weeds without disturbing the cuttings. When frosts come they always raise and loosen the cuttings, so that it is advisable to firm the latter by treading after the thaw comes and directly the soil dries a little. The wood most suitable for cuttings now should be matured; in very early summer it should be younger. Choice cuttings may be inserted in sandy soil in a cold frame. It will suffice if cuttings are severed just below ordinary leaf-joints, but the better way is to cut them off with a tiny heel of older wood attached. Use a sharp knife, remove the few lower leaves, fix the cuttings in an upright position in the trench, and always make the soil firmest against the base of the cutting. Hollies, veronicas and skimmias should be inserted in a frame, also any conifers; but laurels, aucubas, privet, willows, roses, flowering currants, etc., only require an open border.

PLANTS TO WINTER ON GREENHOUSE SHELVES.

TO the amateur, the greenhouse is, perhaps, a very important part of his garden, and his main interest is, probably, centred in it during the winter months. Frequently, one finds the greenhouse is over-taxed in winter—too many plants are crowded into it. In some structures there are too many shelves, in others too few. There should be a full complement of shelves, then great numbers of plants may be successfully wintered in the greenhouse. There are lobelias, zonal pelargoniums, ageratums, fuchsias, marguerites and other summer bedding-out subjects that always do nicely on shelves. In the sunniest position schizanthus plants will winter splendidly; and in the warm greenhouse, where plenty of artificial heat is at command, it is possible to keep the coleus, Iresine alternanthera and other heat-loving plants. Not many shelves should be empty. They are ideal for the pots of mignonette, stocks, antirrhinums and, later, after Christmas, bulbs and strawberries. Begonias, bouvardias, cacti, calceolarias, primulas, cyclamen, cinerarias, heliotrope, hydrangeas in small pots, kalosanthes and streptocarpus. Now, to be able successfully to winter the plants, they should all possess plenty of roots, or, in the case of cuttings, have a nice callus which will develop into roots early in the new year. It means that all applications of water must be given with great care, and in the morning only; stimulants should not be given, and air must be admitted without direct cold draughts on the plants.

VINES IN THE SOUTH.

IN smaller gardens, and sometimes in larger ones, the remark is made that the vines are unsatisfactory and not giving such good results as they might. One of the most common causes of failure is overcropping, not only in the young stage, but later on, when the plants have filled their allotted space. Here, however, the grower is not always to blame, and most of us like to see a heavy crop. Another principal cause is root action, and as so much depends on the roots, it is advisable to ascertain if these are in good condition and whether there is enough root fibre to supply the rods with food. Small berries, shanking, and bad colour are all due to improper root action.

September and October is a good time to deal with vines, and, as a rule, a portion of the border will need taking out and replacing with fresh material. Prepare a clean lot of drainage, loam well chopped down with a spade, crushed bones, and old mortar rubble.

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A PICTURESQUE PLANTING OF THE GLOBE FLOWER.

The loam, rather on the heavy side, should form the staple, and to every cart-load add ½cwt. of ½in. bones, two ordinary barrow-loads of old mortar rubble, and a sprinkling of ashes from the rubbish fire. Thoroughly mix the whole, and protect from rain, as the compost ought not to be used in a wet state. If there are both an inside and an outside border, the former should be dealt with this year and the latter next season. Dig a trench 2ft. wide down to the drainage, and take the old exhausted soil away. Then the soil is gradually combed out with a rake or fork until a fair quantity of live roots are found, and during this process all stray roots must be carefully preserved. About three feet of new border will be ample, so build up a turf wall at that distance, and fill the intervening space with soil. Keep any roots fairly near the surface, and make the compost firm. During sunny weather shade the vines, and syringe them two or three times each day.

SOME VARIETIES OF THE GLOBE FLOWER.

THIS genus of trollius contains some very handsome plants for moist positions where the soil is deep and rich, although they will succeed in an ordinary border if the ground is fairly good and not too dry during the summer months. Perhaps the most popular is T. europæus, the common globe flower; and the garden kinds known as Fire Globe (bright orange), Orange Globe (rich glowing orange), Prince of Orange, Citron Queen, Excelsior (fine rich orange) and Gold Quelle, all producing globe-shaped flowers in various shades of citron yellow and deep orange. The plants attain a height of 18ins. or 2ft., the blooms standing well above the foliage. T. pumilus is a dwarf species from China with pale yellow flowers which are wide open, the whole plant growing about 6ins. high. This trollius blooms about June and July, and, as a rule, follows the varieties referred to above. T. yunnanensis is often considered a form of T. pumilus, but in many respects it is distinct, the scapes are branched, and it is in bloom later in the year. A native of China, the expanded golden yellow flowers are tinted with green on the outside, while the foliage is very distinctive. This plant is readily raised from seeds, and if they are sown when ripe, germination takes place almost immediately. One of the finest trollius is T. Ledebourii, a magnificent plant growing from 3ft. to 4ft. high, and the strikingly beautiful orange-yellow flowers appear when other members of the genus are over. It is a subject that ought to be represented in every collection. Trollius may be increased by division, which can be done in September, also from seeds, but in some cases it is twelve months before any seedlings appear.—T. W BRISCOE.

THE ORANGE PERUVIAN LILY.

ALTHOUGH a native of Chili, Alstrœmeria aurantiaca, the orange alstrœmeria, is popularly grouped with others of the genus under the name of "Peruvian Lily." It is one of the finest of the genus for the border, and has the advantage of being a good town plant. I have known it in confined town gardens and this summer I have come across a magnificent clump in one of these town gardens, growing 4ft. high, and with a wealth of its deep orange flowers streaked with brown or purple on the upper segments. This particular plant has received no special care and has been in the same border for a number of years without disturbance or the application of any fertiliser. The alstrœmerias, in fact, rather resent disturbance, and some of the most successful growers I know raise them from seeds and transplant the seedlings early to where they are to bloom. The tubers are rather brittle and are liable to injury when removed, and if ordered with bulbs, frequently arrive at a bad time of the year, when frost prevents planting them at once. If a plant can be procured in a pot all the better. This alstrœmeria varies slightly in colour and some forms are almost pure yellow and may be sold as A. aurea. It may be of use to some to say that A. aurantiaca does not run so freely at the roots as A. chilensis, but can be more easily kept in bounds. Personally, I have found it do admirably in a very dry, sunny place, with some old lime rubbish in the soil, but the latter ingredient does not appear to be necessary and may be omitted where not conveniently obtainable.—S. ARNOTT.

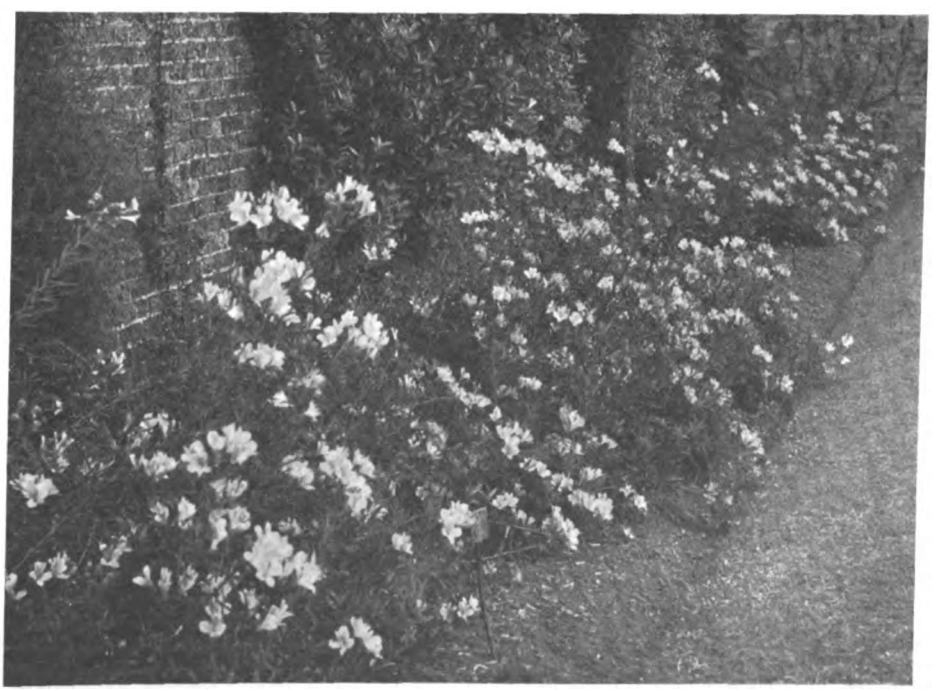
HARDY ANNUALS IN EAST OF SCOTLAND.

A FEW of the hardy annuals, which have done well sown and grown in the open beds and borders are—Campanula Speculum, Collinsia bicolor, Collomia coccinea, Matthiola bicornis, Nemophila insignis, Papaver umbrosum, Silene Bonetti and Sweet Alyssum. Some of these might be termed old fashioned annuals, yet they are quite charming and effective when well grown. It is certainly not necessary to have over-rich soil in which to sow the seed, as the borders in which some of those mentioned are growing have not been enrichedwith manure or leaf-soil for a few years and yet the plants have done well. Four of the plants mentioned are grown in front of herbaceous plants, where two or more patches of the same genus occupy stations at different parts of the borders.

Campanula Speculum is a pleasing and dainty purple-flowered plant, and is catalogued under the name of Venus's Looking-glass, but strange to say it is seldom seen in gardens; why this is I do not know, as it is by no means a miffy annual. A white-flowered kind, equally floriferous, is also to be had, and when seen from the distance one would conclude that a good strain of white lobelia occupied the ground.

Collinsia bicolor, may also be included under annuals seldom seen, yet it is one of the showiest and most attractive of plants.

Collomia coccinea is altogether out of the common yet it is not really a gaudy flowered annual, but there is something in the colour and appearance of the small flowers which arrests attention. Although called coccinea, I should describe the colour of the flowers as reddish pink. This collomia looks well when associated with Pentstemon Newbury Gem.—DAVID ARMSTRONG.



A BED OF THE ORANGE PERUVIAN LILY.

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PLANTS IN A SOMERSET GARDEN

IN spite of one's expectation of a poor show of flowers this year after last season's wet and cold, it has been a pleasant surprise to find most shrubs have flowered with exceptional freedom. The New Zealand olearias, leptospermums, pittosporums and Clematis indivisa have all blossomed with the utmost lavishness, while earlier in the spring the Australian Prostanthera rotundifolia was literally smothered with violet flowers from top to bottom. On the other hand, the New Zealand cabbage palms (cordyline) have flowered very sparsely throughout the district, probably owing to insufficient ripening of the wood last year.

A very successful grouping has been a bed of true blue hydrangeas with a number of Lilium regale and Watsonia Ardernei planted among them. A fine form of Plagianthus Lyallii is growing in the same bed and gives it the necessary height. The hydrangeas are the variety of H. hortensis known as rosea (a form collected by Maries in Japan many years ago) and the French variety Radiant, both of which come a deep rich blue when planted in a lime-free soil with plenty of leaf-mould and a little peat added to it. Tropæolum speciosum accidentally found its way into this bed and wreaths the hydrangeas and lilies with garlands of its scarlet flowers. The lilies are all seedlings, now in their fourth year, and certainly help to show what an invaluable plant this species is; some of the sturdy stems have carried sixteen flowers. Just beyond the hydrangea bed a big bush of a very fine single variety of Rosa indica has made an excellent background to the picture. Perhaps the greatest interest in the garden this year has been the flowering of several Beschorneria yuccoides. Why this denizen of Mexican deserts should be stirred up to flower by last year's dismal behaviour it is hard to discover. Nevertheless, in April four plants began to show signs of flowering and sent up magnificent rose-coloured stems 12ft. in length and as thick as a man's arm. The rather insignificant green blossoms depend from numerous branches, and the whole effect is decidedly striking; it would be still more impressive if the stems would stand erect instead of lying almost horizontally. Some very tall eremuri were in flower at the same time as the beschornerias and added to the sub-tropical effect of this corner of the garden.

The scarce Bomarea multiflora has flowered more freely than ever before and there are still many buds to open. The great clusters of tubular flowers of red and yellow freely spotted with black are very handsome growing through a tangle of Rosa sinica Anemone, white clianthus and Lonicera Hildebrandtiana. A few seed-pods have already formed, and there seems a fair prospect of sound seeds being ripened. A plant of Iris Wattii growing at the foot of an east wall is carrying two seed-pods, apparently the first time that this fine species from Yunnan has borne seed in England. Iris japonica flowered very freely in the spring, but not a single flower has set seed.

A rather attractive feature at present is a group of the biennial Michauxia campanuloides planted among dwarf rhododendrons and alongside Lilium Henryi. This Michauxia suggests a 6ft. Canterbury bell plant carrying dozens of white passion flowers; not a scientific description, but it may convey some idea of the uncommon appearance of the plant to those who have never seen it. Primula helodoxa has astonished everybody this year by its vigour in quite a dry bed, doubtless thanks to the abnormal rainfall of last winter. Many self-sown seedlings have come up around the old plants and will replace those which have succumbed to the drought of July. Primula japonica and P. burmanica growing in the same part of the garden began to flag long before P. helodoxa, when the drought set in. A few year old seedlings of the dainty little P. chrysopa flowered in the bog-bed and made one wish for more of the cool lilac flowers on mealy stems. This species and P. chionantha seem to be the most generally satisfactory of the newer species of primula for the average garden.

The glowing flowers of Mimulus Whitecroft Scarlet have been freely borne for at least six weeks, and the plant makes a suitable carpet for the stems of Lilium Parda-Coldtii and L. Burbankii to spear through. M. cardinalis has grown with such vigour that it has become too coarse for association with lesser plants, and its 5ft. stems have had to be supported by stakes. The alpine form of Parnassia palustris (brought from the neighbourhood of Mont Cenis) is growing and flowering bravely in a sunk pan in the rock garden, where it receives an occasional soaking in dry weather. Although this is a distinctly neat and small form in its native haunts, under cultivation it grows just as large as our English grass of Parnassus, so beautiful on the cliffs at Whitby. The much vaunted pink Jasminum Stephanense has flowered here for the first time this year, and is rather disappointing; the flowers are not a clear pink in tone, but have a tinge of lilac which greatly detracts from their beauty. Possibly further crosses with J. Beesianum may result in better coloured forms.

A very charming little white campanula has made its appearance at the edge of a path and is scarcely distinguishable from the fashionable C. Hallii. This seedling is probably only a pusilla form, however, as there are no plants of C. Portenschlagiana very near.

Several small plants of Gentiana asclepiadea are now in flower and prove what a strong constitution this species possesses, for they were collected in June, 1923, near Le Lautaret, packed in a hamper with other plants, and took five weeks in the post before reaching their destination. Needless to say, very few plants in that consignment survived the ordeal of such a long journey, but every one of these gentians recovered.

The mild winter was favourable to the establishment of Musa Basjoo, the Japanese banana, which started into fresh growth early in May and continues to unroll its great leaves one after another. A small tea plant (Camellia viridis) which has been growing unprotected for the last three or four years appears to be becoming quite at home in a sheltered shady corner.

N. G. HADDEN.

EFFICIENCY IN HEATING APPARATUS

MODERN glasshouses possess many points of superiority over the structures in which nineteenth century gardeners grew their plants. Broad glass, minimum of light restriction, and labour-saving ventilating gear are examples of these improvements, but none is of greater value than that which is the outcome of skill and ingenuity on the part of the heating engineer.

The pleasure of possessing a greenhouse is sadly discounted when, through inefficient heating apparatus, there can be no leisure or freedom during winter evenings, and a spell of hard frost means anxiety and maybe serious loss of cherished plants.

Where an extensive range of vineries, forcing houses and plant houses is concerned the anxieties are increased and, furthermore, the running costs of an establishment become extravagant, for defective or inadequate heating apparatus invariably means waste of fuel, and that under present conditions is intolerable.

Those of us who can recall the days of the old flue-heating system are fully alive to the vast difference which the adoption of hot-water heating made to indoor gardening, but when the old type of saddle-back boiler proved itself a boon and blessing fuel was very cheap and labour cheaper. Garden workers sought but little relaxation from their work, and living in the bothy or the lodge, the man on duty took it as a matter of course that temperature must be maintained even though it meant a restless night whenever frosts were keen.

Conditions have changed and, honestly, we cannot regret the change to the extent of wishing a man should still, simply because he chooses a calling in which he finds interest, be robbed of a reasonable amount of freedom and recreation. We certainly lament the fact that many fine ranges of glasshouses have of recent years been allowed to stand idle and unproductive on the score of economy, especially as in a large proportion of such cases the sole need is for installation of an up-to-date heating apparatus.

A point that appears to be frequently overlooked is that, although cost of production is higher than it was some years back, value of produce has also increased, and actual instances have come before the present writer's observation

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where excellent glasshouses stand idle, but where cash expenditure upon choice fruits, flowers and winter produce for the requirements of the household reaches double the necessary cost of production at home if only the antiquated boiler and defective pipes were replaced by apparatus of the best modern type.

Such an undertaking is a sound investment on a large establishment from an actual financial standpoint, to say nothing of the pleasure of having home-grown produce and of witnessing a transformation in the attractions of the gardens.

The modern tubular boiler, of which an excellent example is herewith illustrated, makes even stoking a congenial task, and is capable of securing the maximum of service in the way of heating power from the minimum of fuel. Furthermore, by means of excellent control of draught, which may be ensured by employing experts to install the apparatus, it is possible to utilise breeze, slack and the cheap grades of fuel with perfect satisfaction, while the more expensive anthracite coals may be so economically consumed that they are, after all, economical.

Further advantages in these modern boilers are simplicity of repair work. A damaged tube may be replaced with a new spare part with small trouble and expense, and the construction of furnace and flues is such that there is practically no risk of choking with soot or shale. Temperature can be regulated to a nicety, and with the fire once going and required temperature once obtained an intelligent stoker can bank up and leave his work with safety from evening till morning during the keenest frosts.

Sectional boilers of various patterns and makes are placed before the public by engineers of the highest reputation, and the two essentials to certain satisfaction are, first, to place the installation in expert hands; and, secondly, to have a boiler that is capable of heating a larger area than that existing.

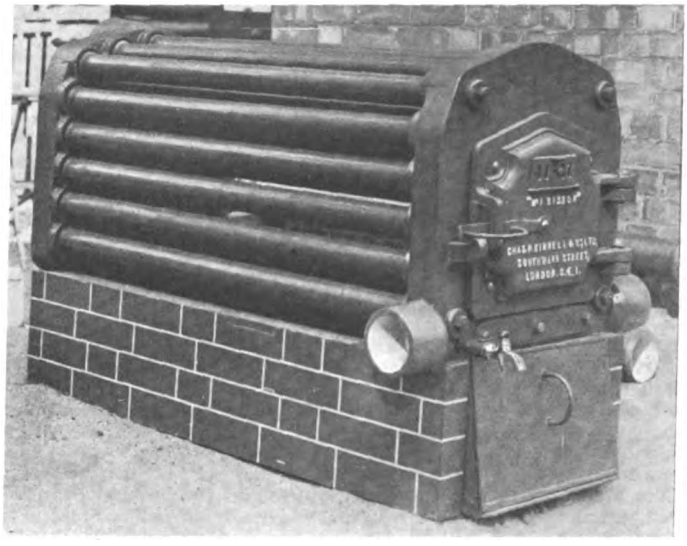
Allow the expert to decide the position and depth of the stokehole, the height of the chimney and the arrangement of pipes; bad setting and unscientific arrangement of pipes, bends, etc., have been responsible for much trouble and many disasters. The little additional cost of a boiler a size larger than the bare necessities demand is more than met by the economy in fuel effected by easy work instead of constant driving, while the life of the boiler will be prolonged and there is always the advantage of being able to extend a house or add a pit without overtaxing the boiler.

For very large installations it is possible to effect further economies by introducing electric turbines, which are inserted in the flow pipe close to the boiler. The turbine accelerates the speed of the water, forcing it through the pipes at such a pace that, after travelling round an extensive range, the water returns to the boiler almost as hot as it was when it started. The import of this is that when once the boiler is well heated an even temperature is maintainable with a very small fire.

Steam heating which is in general use in the large commercial establishments in America is under experiment in some of our large nurseries in the neighbourhood of London, and Mr. Engelmann, the famous carnation grower, is so convinced of its merits that after exhaustive experiment he is reorganising the whole heating system in his nursery, where the many acres of glasshouses will soon be heated by steam generated by four boilers. This is a matter of interest as showing the continual progress that science is making in horticulture, but for private establishments and amateur gardeners present-day types of hot-water boilers will prove adequate for many years to come.

Even the small tenant's fixture type of greenhouse should be equipped with a proper boiler and substantial iron piping; the flimsy oil-heated apparatus made of galvanised sheet iron and the like are poor makeshifts for a good upright or horseshoe boiler and flow and return pipes of 3in. diameter.

L. I. ATRIS.



A MODERN TUBULAR BOILER FOR THE GREENHOUSE.

CORRESPONDENCE

NEW GLADIOLUS.

SIR,—As you stated in your report on the Royal Horticultural Society's fortnightly meeting on the 25th inst., when we were given an award of merit for a new gladiolus which we had named White Lady, this name had already been appropriated for a gladiolus, and the award was made subject to our re-naming our new introduction. "Queen of Somerset" will be the name under which it will be known from now.—KELWAY AND SON.

THE PROTECTION OF OUR WILD FLOWERS.

SIR,—In your timely editorial article on this subject, you infer that such plants as the Royal Fern and Lady's Slipper orchid, if exterminated in a particular spot, could easily be re-established there later on, if desired. This would imply that the Lady's Slipper from the sub-alpine woods of Switzerland, from where the new supply would probably have to come, has exactly the same constitution as our north of England Lady's Slipper. Is this correct? Or is it more likely that the north of England plant has slowly adapted itself in the course of centuries to our north country climate, and therefore, if left alone, can hold its own, where the Swiss plant might not? My observations have led me to believe that nearly all our isolated colonies of plants, especially among the hills, have each an individuality of their own, and it does not follow that what will suit, say, a Dryas octopetala from North Yorkshire will equally well suit one from Skye. Or take Helianthemum canum growing at an elevation of 1,700 ft. on a Yorkshire hill and the same plant growing at sea level on the Lancashire coast, would the coast plant be likely to survive if transplanted to the hill station? I very much doubt if it would. If this is correct, it emphasises the need for more effective protection of our rarer plants in their present situations. But such protection, I think, to be of much good, must be, as you suggest, by public education.

Last year I saw the garden you refer to near La Grave, but one thing that it demonstrated was that it cannot be much easier to grow artificially many of the higher alpine plants, even at 6,800 ft., than it is in our lowland gardens. And anyone seeing these growing in their cultivated beds, after seeing them wild among the crags, might be excused if he thought he would just as soon see them pressed in a herbarium.

In this district we have lost more of our rarities, I believe, through drainage and the growth of industrial areas, than by any other cause, but some things I am afraid have been exterminated by the collector, such as the oyster plant from Holy Island, the Lady's Slipper from Castle Eden Dene, and the little fern, Woodsia ilvensis, from south-west Durham. In these cases one feels that it was done knowingly, and therefore all the more shame on those who did it.—R. B. COOKE.

[Mr. Cooke does not quite get the point of my remark about replenishment of old haunts. What I meant was that as plants like Daphne Mezereum and Osmunda regalis had been collected from the wilds to fill our gardens, so gardens might give again to the wilds. Plants are transplanted in any case, from high altitudes to gardens at sea level, and most of them succeed in some place or another. There are, of course, a few exceptions, like Eritrichium nanum—but even this has been kept alive in gardens on rare occasions. The only native that, I believe, has never been grown in a garden is Rubus chamæmorus, the cloudberry or averine. I was certainly wrong in quoting La Grave as an example of a national rock garden, for I had forgotten for a moment that in this

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case the plants were collected in beds. I believe that the idea on Snowdon was to have planted them in their natural surroundings and then to have left them to their own devices.—ED.]

FREESIAS.

SIR,—I am glad to see "Clydesdale" is a freesia lover, and am still more pleased to see he prefers the named sorts to the mixtures. The mixed colours are useful for those who want to try a few as an experiment, and still more useful are they for cutting. They are splendid as cut flowers, last well in water and are most decorative. Mr. Avray Tipping writes a most helpful article on cut flowers. Has he ever tried freesias? I wonder if your correspondent Clydesdale has been really successful with F. Excelsior. I have never had any success with it. Chapmanii is a fine colour, but small. Has Clydesdale ever tried Daffodil, Apogee, Buttercup or Treasure, to mention a few commoner yellows? I think the blues and mauves he names are now superseded by better varieties. La Charmante is first-class and in place of Rosa Bonheur try Conquest, unless both can be afforded.

On page 494 G. G. gives some useful hints about growing freesias, but may I make a couple of suggestions. (i) Leave out the peat and leaf mould in the compost and add a little bone meal; (ii) *do not cover the pots after potting with any material whatever*. G. G. says, "Very frequently one sees freesia plants . . . with their stems and main leaves toppling over the sides of the pots; this is the result of bad potting. . . ." By covering the pots with ashes, sand, fibre, etc., you cause the growths to be weak and lanky, and then they topple over. Leave them uncovered, let them have plenty of air under a cold frame and the growth, as soon as it commences, will be strong and sturdy. I prefer just to cover the top of the corms, for the big fleshy main root—the contractile root—starts its growth immediately below the leaf growth and by having the top of the corm just below the surface the root grows straight down into the soil, and the deeper the pot the better it likes it, and the leaf growth has only a very little soil to force itself through.—G. H. D.

ASTER THOMSONI.

SIR,—I was very pleased to see the note on the above in your issue of August 29th, as I quite agree that it is one of the best asters. I have the taller form, which is very beautiful provided it is allowed to grow naturally without being tied up at all. It starts flowering about mid-July and lasts until October in full beauty. If lifted early in spring, just as it starts into growth, broken up, potted in small pots and put into gentle heat, even the smallest pieces grow quite easily. A. Trikarti is now flowering with me; it has larger flowers than Thomsoni and is an excellent grower, but I so far do not think it will be as graceful or as light as the old Thomsoni —J. B.

SOUTH AFRICAN GLADIOLI.

SIR,—I have read with much interest the article on "South African Gladioli," in your issue for July 11th, and I am glad to see that your correspondent calls attention to the extraordinary beauty of these flowers. I note he remarks that bulbs of them are almost unobtainable, and I should be grateful if you would allow me to state that I am collecting these and growing them from seed, partly with the idea of sending the bulbs to England, also to help to prevent their extermination by ruthless collectors. I have three varieties of the Painted Ladies found on the mountains in this district, one is particularly beautiful, having large creamy flowers suffused with pink on the outer side of the upper perianth segments, with the usual carmine markings on the lower segments, the blue anthers giving a perfect finish. Now in bloom are the "Pypjes," G. recurvus, very delicate flowers in every shade of blue, lilac, yellow and all sweetly scented. Later will come the "vlei Afrikanders," with large brown blooms. Another is a transparent scarlet with the shape of a primulinus bloom. If any of your readers are interested in these I should be glad to hear from them. I note that your correspondent describes Babiana stricta var. rubro-cyanea, "upper half of the perianth brilliant blue and the lower half a rich crimson." I do not think this gives quite the right impression of this striking flower. The outer part of the perianth segments are a brilliant blue and the lower, or centre of the flower, is deep red.

I should like to tell you how much we appreciate THE GARDEN, though we garden so far from Chelsea. Its pages are eagerly scanned for the latest carnation news and anything which keeps us in touch with the Old Country.—K. C. STANFORD, *Bloem Erf, Stellenbosch, Cape Province.*

DESTROYING SLUGS.

SIR,—There have been several articles appearing in THE GARDEN recently dealing with the slug trouble, and various remedies have been suggested, yet no mention has been made of Kainit. As I have benefited so much through using it, I should like to advise others to give it a trial. I got the advice fifteen years ago, after having tried for three years previously to deal with the trouble, yet without success.

The instructions given were to sprinkle the ground with Kainit in the month of November of each year, yet, although to the best of my recollection it has not been applied here more than six times in those fifteen years it has apparently been sufficient.

This spring when neighbours were complaining of the damage done by slugs, my gardener said he was unaware of any harm having been done in the vegetable garden, and in this I could support him, as it was so apparent.

I cannot give the quantity in ounces to apply, but it may be scattered as a farmer sows corn, broadcast, only rather more generously. By applying the Kainit in November the winter rains dissolve the salt and it then seems to find its way to the hidden slugs.—"PERTH."

SIR,—I was much interested in "W. J. G. F.'s" remarks on page 466, which appear to be a very simple remedy which most of us can adopt—and who is not troubled with slugs? We all know how fond they are of the young basal shoots of delphiniums, lapagerias and even clematis which happen to be on their roots, and it is in connection with quite young plants of the former and older ones of the two latter that these remarks are penned. Neither lime nor soot deters them from destroying these succulent shoots immediately they appear above the soil, and I have for some years used glass jam jars by carefully knocking out the bottom and then placing over the said shoots as soon as ever they are seen pushing through the soil. This simple precaution baffles the slugs; they cannot crawl up the jar. As soon as these shoots are out of danger the glass can be broken and taken away. They are specially useful for seedling delphiniums or tiny offshoots of a special variety one wishes to increase, and would be of value on many a rockery plant which depend upon such succulent growths for the season's display.—J. MAYNE.

AN ABNORMAL FLAG IRIS.

SIR,—In reply to B. Hanley's note in the issue dated August 29th, I grow a hundred kinds of flag iris and have only had one case similar to his, *viz.*, Iris Richard II. This very beautiful iris freaks with me every year; first it came double, another year with only two standards, often it opens in a torn condition, is a huge grower, but a shy bloomer, but when it blooms properly it is one of the most fascinating. I do not think Mr. Hanley's iris is Mrs. Reuthe, being too veined in the falls.—H. C., *Saxmundham.*

THE RURAL CRAFTSMAN.

SIR,—It may interest your readers to know that even in these days of machinery, the rural expert with the scythe can still be missed. I was talking recently with those responsible for the upkeep and care of the beautiful Cumberland turf bowling greens in this town —the annual tournament was then taking place —and I found they were lamenting the pending loss of their chief groundsman. It seems that Cumberland turf greens need skilful shaving with a scythe, just to leave green tips on the fibre mats of which they are composed, and that mere mowing with a lawn mower is ineffective for the purpose.

The difficulty, nowadays, is to secure really expert scythe wielders. So the rural craftsman is still valued, and as an old country resident I rejoice to hear it.—HENRY MORGAN, *Hastings.*

FORTUNE'S YELLOW ROSE.

SIR,—In THE GARDEN for August 15th, page 462, the first note on "Fortune's Yellow Rose" says, "It succeeds well in the South of England, but needs moisture and shelter." It has been growing on the south-west corner of this house for over twenty years on its own roots, and I never give it any more attention than to any other rose. It ramps up to the roof and flowers profusely every spring. The stem is over 11ins. round.—E. ALEXANDER.

AN ENQUIRY.

SIR,—There must be a number of readers like myself who are not so successful as they might be with Narcissus bulbocodium conspicuus. Perhaps some reader who has grown this gem to perfection might tell us about its likes and dislikes.—W. F. MCCASH, *Perth.*

CATALOGUES RECEIVED.

Messrs. D. Prior and Son, The Nurseries, Colchester.—An extensive list of roses, including many novelties. Herbaceous plants, carnations, and shrubs and trees are also referred to.

Messrs. Barr and Sons, King Street, Covent Garden, W.C.2.—Lists of flag irises, daffodils and hybrid nerines, and general bulb catalogue, the latter including all bulbous plants. Useful cultural hints are given throughout the pages, which offer a wide and extensive selection of plants suitable for all purposes.

Messrs. Chaplin Bros., Limited, Waltham Cross.—List of bulbs for autumn planting 1925; also a useful collection of roses, fruit trees, trees and shrubs, in a separate catalogue.

Messrs. W. Cutbush and Son (Limited), Barnet and Highgate, London.—List of bulbs and other forcing plants, with numerous illustrations.

Messrs. A. Frylink and Sons, Sassenheim, Holland.—List of bulbs, with numerous illustrations and copious culturdl notes.

Messrs. Ant. Roozen and Son, Overveen, Holland.—An extensive list of all bulbous plants which all enthusiasts should have.

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OUTSIDE SEED BEDS

OWING to lack of space in the greenhouse, I was forced to sow a number of seeds outside which are usually grown under glass. By this I mean primulas, meconopsis and rhododendrons. This is by no means the first time that this has been done, for Mr. White at Sunningdale has grown rhododendrons successfully for many years from seed sown either out of doors or in unheated frames. On the other hand, few amateurs make a practice of this outside seed sowing, presumably from fear of the casualty list. One keen primulist who has no glasshouse has had to rely for years on plants raised by other people—an unnecessary expense. The results I have had might interest some readers of THE GARDEN.

It must be remembered that my garden is on the east coast of Scotland, where the drought this year lasted for about ten weeks; also, we are not in a neighbourhood where rhododendrons seed themselves. This also does not take into account scattered and self-sown seed of primulas in the wild garden, which is also satisfactory.

I began by double trenching two beds 6ft. by 3ft. 6ins. in the middle of a thin wood where there was plenty of light, but they were almost completely sheltered from the sun. The top spit was heaped on the side of the beds to make an added protection. The bottom spit was raked but not beaten down, and on the top of it was placed a 2in. layer of sieved leaf-mould 2 parts, coarse sand 1 part, loam 1 part. This made the level of the bed 8ins. below the top of the bank. This was done at the very end of April. It was well watered and left over night.

On the next day the seed was sown in plots, each plot being divided off by strips of bamboo. The only soil covering I gave them was a dusting of sand, which, I think, was a mistake; it should have been riddled leaf-soil and sand mixed. The beds were then covered with wire netting. The only attention they have had was twice weeding and a very occasional watering. Although fairly sheltered from the wind, additional shelter would probably have been an improvement, for, although the seeds have not blown away, a few of the rhododendron seeds may have shifted their quarters.

The results, so far, are as follows: Primula sikkimensis P. secundiflora and P. glycosma have germinated in bulk and are now about an inch high. Meconopsis Wallichii, M. rudis, M. simplicifolia and M. Prattii—all sown—have briered splendidly and are now strong, healthy plants about 2ins. high. M. Wallichii, always inclined to damp off, have come up like mustard and cress with no signs of damping off. About forty out of sixty rhododendrons have germinated, an exceedingly good percentage in four months, considering the dryness of the atmosphere and the short time since they were sown. Five of them have germinated in bulk, the rest just a sprinkling, but sufficient to give me a stock.

The birds showed great curiosity over these beds for the first week or two, but now they never go near them. I shall do no pricking off this year, with the possible exception of one primula and one meconopsis. For winter covering the only thing necessary is a layer of branches laid on the top of the wire netting—not a very laborious operation.

I see no reason to suppose that these seedlings will not survive the winter, for they are all of hardy species. The obvious disadvantages of this method of seed sowing are that you lose a year by sowing outside instead of inside, and that the seeds stand a greater chance of damage from natural causes, which means that it is safer to sow seeds inside if they are in small quantities. On the other hand, there are certain great advantages. Seedlings do not have to be handled so much as the damage from damping off is lessened, so they can be left longer in the seed-bed outside; and the seedlings are often hardier, as there is no shock to the seedling in transplanting it outside, which is often the case in an inclement season when taken from a house to a nursery or a bed outside. This method of outside sowing also does away with the large amount of space necessary for pans and boxes when seedlings are pricked off in a house. I have noticed that seedling rhododendrons which have been grown from seed sown outside spring away better from the ground: this is at least the case on the east coast of Scotland.

I am so well satisfied with this experiment, at any rate, that I am going to continue it next year with other seeds. No doubt there are many which are not suited to this outdoor treatment—among them all seeds which take a long time to germinate; but such shrubs as berberis and such trees as the birches, even in rare varieties, would probably be far less costly to raise and give little trouble or labour if sown in an outside seed-bed.

E. H. M. C.

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

TROPÆOLUMS AND BRODIÆAS, by Th. Hoog, Jr.

SOME CHINESE SHRUBS OF OUR GARDENS by H. G. Hillier.

A WINTER GARDEN, by R. E. Head

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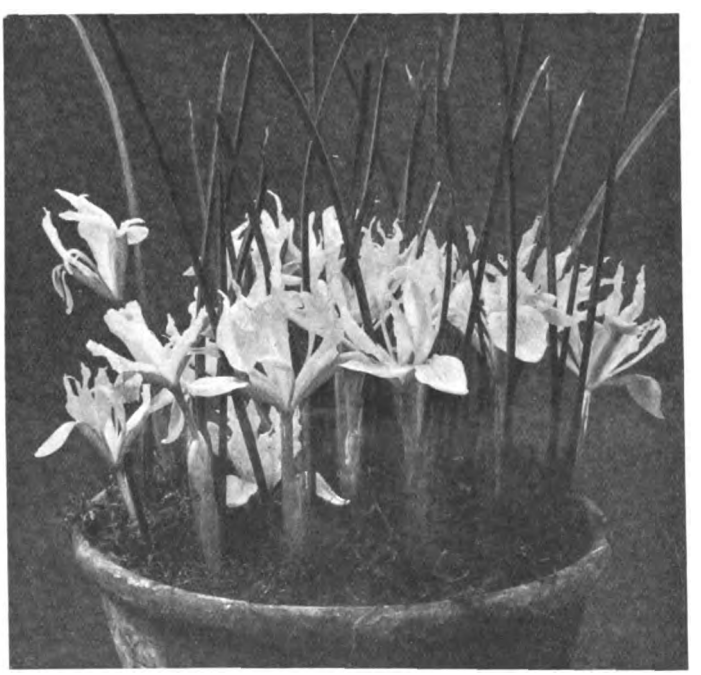
DWARF BULBS AND TUBERS for the COLD HOUSE

IF you are the owner of a cold greenhouse (by which is meant absolutely no heat at all), and are searching about for a means whereby this may be made beautiful during the early spring days, why not try specialising in dwarf bulbs? These are not only quite cheap to purchase, but very easy to grow and, by a judicious selection of varieties, you can be sure of a magnificent display of flowers from early February until the end of April.

Perhaps you are wondering why dwarf bulbs are especially mentioned. Well, the idea behind it is that they can be grown in shallow seed pans, about 6ins. in diameter. These hold a number of bulbs, can be packed close together during the growing period, and present a splendid appearance when covered with flowers, far better, indeed, than the deeper pots, although these can be used if there is a shortage of pans. Then, too, by confining the selection to bulbs that do not reach a higher stature than 1ft., one is sure of a much more varied and interesting display than where the more usual daffodils, hyacinths and tulips, bulk largely among the selection, and, last, but by no means least, the plants are not a one season investment. By taking a little care of them after flowering is over (and especially as you have not forced, but only anticipated), the same pans can be used again and again for several years, without even the trouble of re-potting. This is not at all an unduly optimistic statement, for I have tried this and found that, with a large number of species, the second and third and even fourth year of flowering have been no whit inferior to the first year they were grown.

To ensure this permanent use one must take reasonable care of them after flowering. They must not be left without due supplies of water, nor must one suddenly turn them out into the cold open air and leave them to fate without further thought. Careful hardening off is necessary, and then one must have a plunge bed where they can spend the summer and autumn before renewed growth takes place. A plunge bed consists of a thick bed of ashes, into which the pans can be sunk to the rims.

We have gone somewhat far, however, from present work, for the immediate job before us in that of potting the bulbs which we propose to grow. With so wide a range of plants, it will be obvious that different composts are essential and care must be taken, as far as possible, to provide the soil best suited to the species. The wee, miniature daffodils, for instance, are admirably suited by a mixture of peat and turfy loam and do not require sand at all. A similar mixture is admirable for many of the anemones, while the delightful little tulip species luxuriate in a compost of one third coarse gritty sand to two-thirds fibrous yellow loam. Muscari, alliums, scillas, fritillarias, etc., will all be found to thrive in a general soil, such as two parts of good loam to one each of leaf-mould and coarse sand. Perfectly clean, well drained pans are essential and these should be two-thirds filled with soil, then the bulbs arranged on this and the remainder of the pan filled up. Here is where the first use of our ash bed comes in, for there can be no better place in which the plants should make their first roots. Plunge level with the rims, then sift a further 3ins. or 4ins. of ash over the surface so that they are completely buried and leave them here for three months. After that you may lift them and bring into the cold greenhouse.



A PAN OF THE GRACEFUL IRIS RETICULATA.

Having thus briefly outlined general culture, let us turn to the material available for carrying out such an idea. At the outset we spoke of economy, so that only those of moderate price will be dealt with, others can be added in future years. Very like the autumn colchicums, Bulbocodium vernum, with its bright purple flowers, is splendid in February and March and has a very distinctive appearance from the more ordinary crocus, of which it is a fitting companion. The crocuses themselves, of course, are ideal for our purpose and provide a very large range of delightful shades, varying from the deepest gold to the softest mauve and from deep purple violet to the purest virgin white.

Among the earliest flowers that give you a foretaste of the larger spring that is preparing out of doors is the chionodoxa, a well appreciated gem in purest blue and very easy to grow. The white form of this, though lacking the glorious colouring, is another splendid flower, and both of them are conspicuously long lived under good culture. Anemone apennina is another successful plant that will give a wealth of large daisy-like, sky blue flowers thrown well above attractive, fernlike foliage. A. stellata, too, is another good variety to grow, but, with this, it is far better to rely upon new tubers annually. The American varieties of the dog's tooth violets make fine plants when grown in the peat and loam mixture, and the varieties grandiflorum and revolutum merit special praise, for, in addition to the charming effect of the many flowered spikes which push up from the centre, the foliage in both cases is broad and handsome and beautifully mottled with white. The common snake's-head fritillary forms a very attractive feature, but far more striking and less ordinary is the marvellously chequered F. recurva, in which the flowers are scarlet and yellow and very dwarf indeed. Another, though less brilliant, fritillaria is citrina, which is quite distinct from either of the above, with long drooping greenish yellow bells. Some of the hardy cyclamen should not be missed for spring flowering: among them are C. Coum, which has brilliant crimson flowers and Coum album, in pure white. Both of these are February blooming and therefore you secure far more perfect examples where grown under the protection of an unheated house. C. ibericum which follows closely upon the Coum varieties, does not exceed 3ins. in height, and produces a profusion of crimson flowers with purplish black blotches at the base. The variety of this, known as Atkinsoni, is even more striking, with pure white flowers, conspicuously blotched with carmine at the base. These four plants are gems and flourish in fibrous peaty loam, to which a generous addition of lime rubble has been made. Snowdrops make lovely pans and, if the soil is to their liking, often do well for several successive seasons, though, at other times, new bulbs have to be procured annually.

Dwarf iris offer a wide field for experiment, and an almost inexhaustible range of varieties may be procured, although some of the rarer forms are expensive. I. Histrio flowers very early with beautiful blue flowers and, like the following species, should be potted as early as possible, in light soil. I. reticulata appeals upon many grounds. Not only do the flowers come very early, but their deep violet-purple colour with orange blotches is certain to please. The dwarf Narcissus bulbocodium, the yellow Hoop Petticoat, may well be grown; the cup of this is

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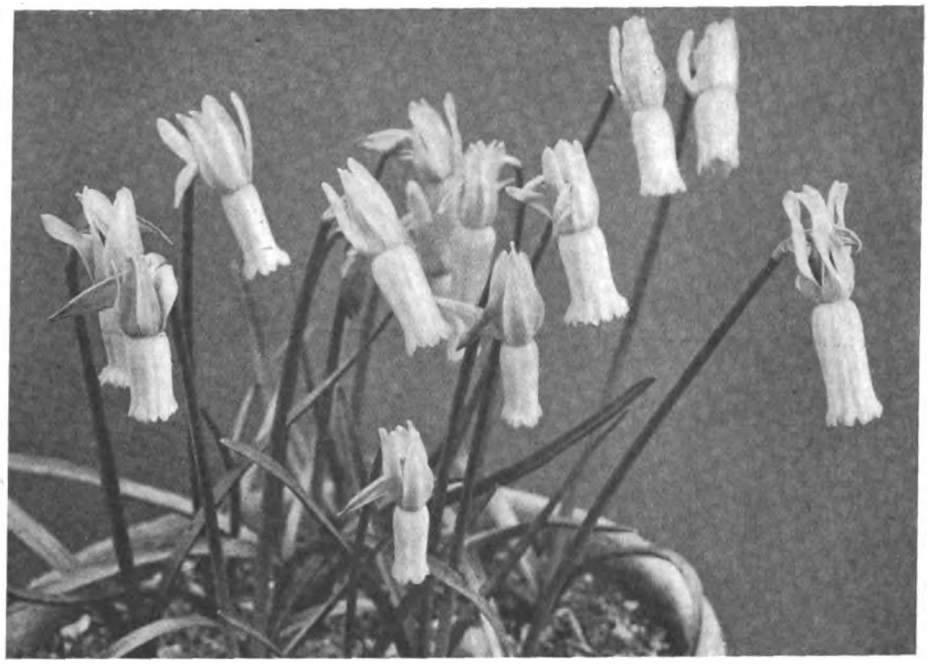
greatly enlarged and drawn out into a large frilled resemblance to an accordion-pleated petticoat. N. cyclamineus is perfectly distinct from this, a wee trumpet daffodil with reflexing perianth, only 3ins. high. N. triandrus—Angel's Tears—fully bears out its quaint poetic name, with its diminutive stature and cyclamen-like white petals, and makes a pretty little pan.

One of the best of all bulbous rooted plants for our purpose is Milla uniflora, a plant that abounds in desirable qualities. Not only does it bloom early and profusely, but the blossoms are of good size and delicately perfumed, and, last, but by no means least, the bulbs do not rest content with flowering once, but throw up further buds in succession, so that they remain decorative for an unusually long time. No wonder that this is called the Spring Star Flower, for its lovely white blossoms are exactly star-shaped in form and, whether the pure white variety be grown or its equally beautiful pale violet form, violacea, you will have superb pans of flower and foliage that last for many years.

And now to close an already extended selection upon a brilliant colour note, let us turn our attention to the tulip species. Some of these, it is true, are high in price and difficult to obtain, but there are plenty of others which are no less brilliant or beautiful and which are within the reach of a very modest purse. Greigii, for example, cannot be said to lack brilliance in its vivid scarlet, while its quaintly mottled leaves are an added attraction. T. persica is quite different again, a very dwarf grower, blessed by the unusual gift of fragrance and opening its flowers wide into little stars of glorious buttercup yellow.

H. W. CANNING-WRIGHT.



NARCISSUS CYCLAMINEUS WITH REFLEXED PERIANTH.

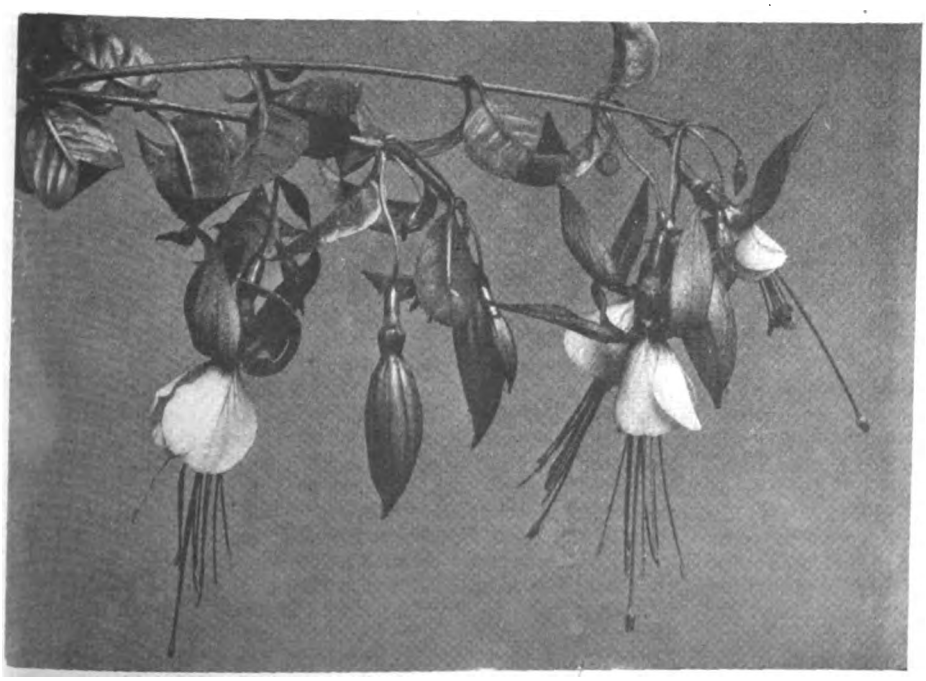
A PLEA FOR THE FUCHSIA

WHY is it that more fuchsias are not seen in our gardens and greenhouses to-day? *Autres temps, autres mœurs*, I suppose. Yet it is not difficult to imagine what an astounding flower the fuchsia must have appeared to those who saw it for the first time on its introduction from South America just about a hundred years ago. The centenary of the introduction of well known flowers might well be celebrated by special shows in much the same way as benzine and the railways are being commemorated this year. The fuchsia gets its name, which, by the way, is nearly always mispronounced, from a certain Dr. Leonhard Fuchs. He was a Professor of Medicine in the University of Tübingen in the year 1535, but took up the study of botany, and can be regarded as one of the fathers of this science. It was he who laid the foundations of botanical nomenclature as we know it to-day.

Most of the distinct species of fuchsia of which Robinson includes some seven in his "Flower Garden," are derived from South America, particularly from Chili, though a few come from New Zealand. Burbidge in his exceedingly interesting, if somewhat out of date, book entitled "The Propagation and Improvement of Cultivated Plants," tells us how in 1876 good fuchsia seed saved from fine varieties was worth some £50 per ounce. To-day it is possible to purchase a packet of mixed hybrid seed for a shilling or two.

For amateurs, and more especially for the impatient variety, there is no plant like the fuchsia. Seed sown in the autumn will produce plants to flower the following summer. Cuttings root with amazing facility and grow so rapidly that the resultant small plants will flower a few months later, though it is as well not to allow them to do so till they have attained a fair size. Fuchsias are also admirably adapted to the exercise of the amateur's skill as a hybridist, for the different varieties are easily crossed and produce a good quantity of seed, which for the most part will be found to be fertile. The seed obtained from hybrids, too, is fertile and accounts for the great number of varieties which have been produced. In fact, this is so much the case that it is positively rare to find a pure species.

The amateur can also get a good deal of amusement making standard fuchsias so that the pendent blossoms may be seen to



FUCHSIA DELIGHT, A GOOD OUTDOOR VARIETY.

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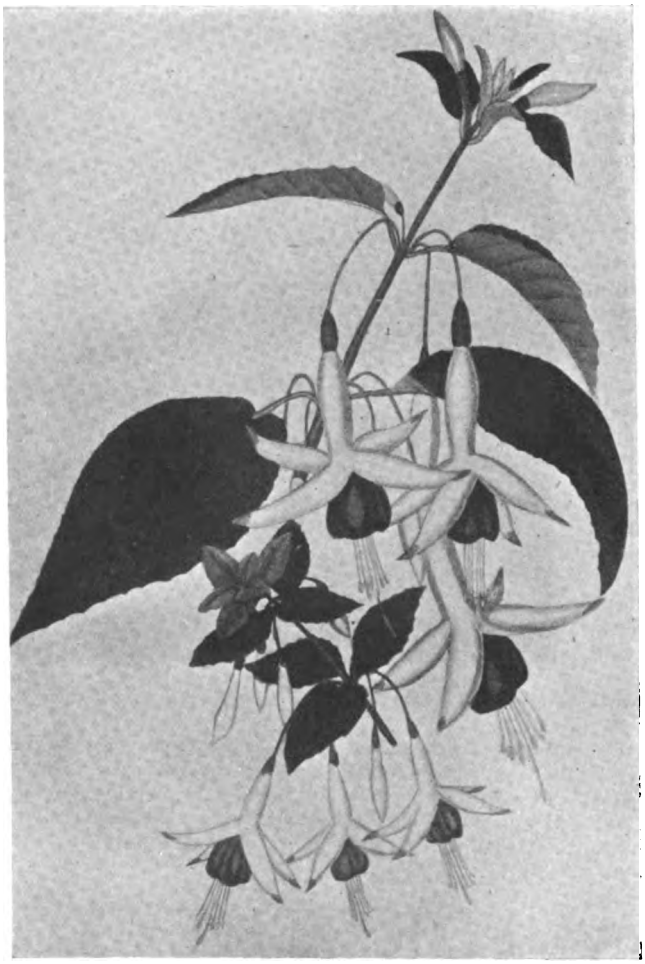
greater advantage. This is very easily done by rubbing off all side shoots as they appear, and only allowing growth at the end of the stem. This soon becomes woody and can be kept straight by tying it to a stout bamboo at frequent intervals. The pruning knife must also be fearlessly used with an eye to shape. In this way a mop is soon formed at the end of the woody stem. A small country child seeing one of these in my garden for the first time was heard to exclaim, " Oh, look at this Christmas tree with the presents hanging from it." A very apt description. Such standard fuchsias, though they require to be taken in during the winter, do not require pampering or coddling; they can then be plunged in their pots during the summer months in some bed set apart for bedding-out plants, if such can still be found.

It is almost hopeless to try to describe the endless varieties of fuchsia flowers, from the tiny blooms of the common outdoor kinds to great big ones in the glass-house. All are brilliantly coloured; in fact, the fuchsia has given its name to one of the best known of the coal tar dyes used as a stain in bacteriological work. Fuchsia flowers may be divided very roughly into two main groups, in one of which the bud has an elongated shape, the other being almost globular. To the former class belong all the single or nearly single varieties; to the latter those with many frills to their petticoats. Sometimes the sepals and the petals blend beautifully together. Sometimes they contrast vividly, as in the well known double variety with cherry red coloured sepals and rich violet petals. Then we have those with white sepals and either dark purple, pink or red petals. The first fuchsia with white sepals, Venus Victrix, seems to have caused great excitement as long ago as 1842, when it was sent out by the Rev. S. Marriott of Horsemonden, Kent. A plant cost 21s. in those days, and it was described in glowing terms by the firm which was responsible for its sale.

For those interested in what may be called plant curiosities the fuchsia family provides a dainty little trailing plant, which at first sight one would not connect with this family at all. This is F. procumbens, which comes to us from New Zealand. With small leaves, like a campanula, this little plant grows over the edge of the pot and puts out charming little flowers which apparently consist of four sepals forming a beautifully shaped yellowish tube. Where the points of these sepals are reflexed they are at first bright green tipped with brown. The characteristic prominent stamens are red with mauve anthers and all the more noticeable because the flowers do not exhibit the usual pendent habit of the family to which they belong. Later, fleshy fruits are formed which, when ripe, are of an orange hue.



TWO OLD FUCHSIAS: VENUS VICTRIX (*top*) ENCHANTRESS (*bottom*).

It is very fascinating to watch a fuchsia bud opening. The four sepals seem to be held at their tips by some invisible hand, while they split along their length, giving one a glimpse of the hidden beauty so soon to be revealed. Then the pressure becomes too great and the invisible fingers have to give way. The four elegantly shaped sepals bend back, often slowly curling in on themselves like a Turk's cap. The flower also owes much of its beauty to the long pistil and the delicate pendent stamens just above it.

Of outdoor fuchsias there are several quite hardy kinds which we can grow in our gardens if we afford them a little protection at their roots in winter. Of course, we cannot hope for the same luxuriance of growth as the fuchsias of Devon and Cornwall and some parts of Wales near the sea, where they grow into great bushes. In Devon they are often used for hedges, as in the famous fuchsia valley leading down to the little bay of Lee, near Ilfracombe. In Wales they often grow up the sides of the white cottages, against which their little bright red flowers show up quite gaudily. In less favoured localities these little outdoor varieties can be grown like herbaceous flowers. Cut down by the frosts of autumn days, the roots protected with a few ashes or some similar material during the winter, they will shoot again with the advent of warmer days. I have seen a fuchsia hedge surrounding a gardener's cottage on an estate within twenty miles of London; the shears were freely used and the hedge kept trim. Each year it bloomed in its due season.

Let us, therefore, reinstate the fuchsia on its Early Victorian pedestal, from which its flowers may be seen to advantage.

EDWARD CAHEN.

CRASSULAS—INTERESTING SUCCULENTS

BY DR. R. LLOYD PRAEGER.

THE difficulty about practically all the crassulaceæ is that, while the more typical species which make up the bulk of each genus are quite distinct and easily placed, the genera tend to run into each other along their borders. Almost every one of the group contains species which are intermediate in character between two genera, and are forced to play the part of shuttlecocks where the battledores are the conceptions of the rival genera in the minds of different botanists. To the botanist such intermediate types are interesting, as affording clues to the evolution of the groups, and he is at pains to study all their characters, and to place them in that genus to which they seem to him to have most affinity—and on this point different workers may well arrive at different conclusions. The horticulturist, on the other hand, is generally content to grow his plants for their beauty or interest.

However, there are plenty of crassulas left, and if none has so large and brilliant blossoms as the former C. coccinea, they are a quaint and interesting race, mostly sub-shrubby and of a characteristic fleshiness—whence they derive their name, for *crassula* may be translated as " little fatty." The leaves, stiffly set in opposite pairs, each pair at right angles to the pair below, are often of striking form or colour, and frequently are joined together at their bases, so as to enclose the stem in a quaint little platform of succulent tissue. The flowers are mostly of secondary importance, being almost always quite small, and white or red in tint. But the whole

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aspect of these plants is generally attractive; they rightly are well represented in the Succulent House of most botanic gardens, and are frequent in private collections.

When "Index Kewensis" was published (1895), about 200 species of crassula were included in it. In the five supplements which have appeared since, nearly 200 more are quoted, so that if we make a further addition for the new species of the last ten years, and an allowance on the other side for synonyms and errors, the genus as at present known appears to number nearly 400 species. This great group is practically confined to South Africa, for outside that area we find only a few species recorded from Madagascar and Abyssinia. C. indica, for many years regarded as the sole Asiatic representative, is now considered to have closer affinities with sedum than with crassula. But this exclusively South African distribution only holds if we exclude from the genus the little tillæas and bulliardas, often looked upon as crassulas; these have an almost world-wide range. While there are a few annual and a few creeping species of crassula, the great majority are sub-shrubby, forming bushes which vary from three or four inches to three or four yards in height. The succulence of leaf and stem which runs through all the crassulaceæ is fully developed in the crassulas, and an old plant of one of the large species is as thick-stemmed and gnarled as one of the euphorbias or cacti of the desert.

Coming as they do from South Africa, it is too much to hope that they will be hardy in our climate; but there is one species, C. sarcocaulis, which makes an excellent rock garden plant in all the milder areas—a neat, much branched little shrub, half a foot high, with glaucous leaves and innumerable pink flowers in dense clusters. If we are to make the best of the others, they should be put out for the summer, since then they lose the laxness and monotonous greenness that succulents tend to assume in greenhouses in our unsuitable climate, and put on some of their characteristic variety of shape and colour.

The crassulas offer no difficulty in cultivation, needing only a very porous soil, with plenty of brick chips or lime rubbish, and coming easily from seed or cuttings. The following is a selection of the species which are in cultivation in England:

C. ALBIFLORA.—One of the best for bloom, with large, flattish panicles of white flowers.

C. ARBORESCENS.—Very striking, with broadly spathulate leaves with green dots and red margins, and rather large, pink flowers.

C. BRACHYANTHA.—A pretty, small, compact plant, with very hairy leaves.

C. CENTAUROIDES.—A rather graceful branched plant, with pink flowers.

C. COLUMNARIS.—Very curious, resembling a large pebble, with a rosette of broad, incurved leaves; before flowering it shoots up into a leafy stem.

C. CONJUNCTA.—Rather tall, erect, with perfoliate, glaucous leaves and white flowers.

C. COOPERI.—A small, tufted plant, with pretty leaves, mottled with red.

C. CORDATA.—Curious and interesting, with stalked, heart-shaped leaves.

C. DECEPTOR.—A curious species, resembling a stone. Leaves overlapping, glaucous, red margined.

C. DEJECTA.—A small, sprawling plant, with flat panicles of white flowers.

C. FALCATA.—One of the largest species, with stiff, solid stems, 1yd. up to 2yds. high, clothed with large twisted leaves set vertically, and yellow flowers.

C. HEMISPHÆRICA.—Forms a low rosette of broad, reflexed, densely overlapping leaves.

C. IMPRESSA.—A small, lowly plant, with leaves marbled on face and red on back, and pink flowers. It takes its name from the curious depressions or pits which cover the face of the leaves, which are also present in some other species, such as Bolusii, Cooperi and Schmidtii.

C. LACTEA.—Large and striking, with spathulate-rhomboid leaves and large cymes of white flowers.

C. LYCOPODIOIDES.—Well deserves its name, as it is quite like a club-moss, or the flower spike of the rat's-tail, Plantago major. The flowers are extremely minute, in the axils of the tiny leaves.

C. MONTICOLA.—Neat, plump, erect, with flat panicles of white bloom.

C. MULTICAVA.—A large bold plant, with ovate, stalked leaves and pretty small pink flowers in panicles.

C. NAMAQUENSIS.—Interesting, rather like deceptrix.

C. NUDICAULIS.—A large, striking species, with a very short stem.

C. ODORATA.—Very tall and solid, resembling falcata.

C. ORBICULARIS.—Quaint, forming a stemless rosette which produces short runners.

C. OBVALLATA.—A stocky, solid dwarf species, with tongue-shaped leaves.

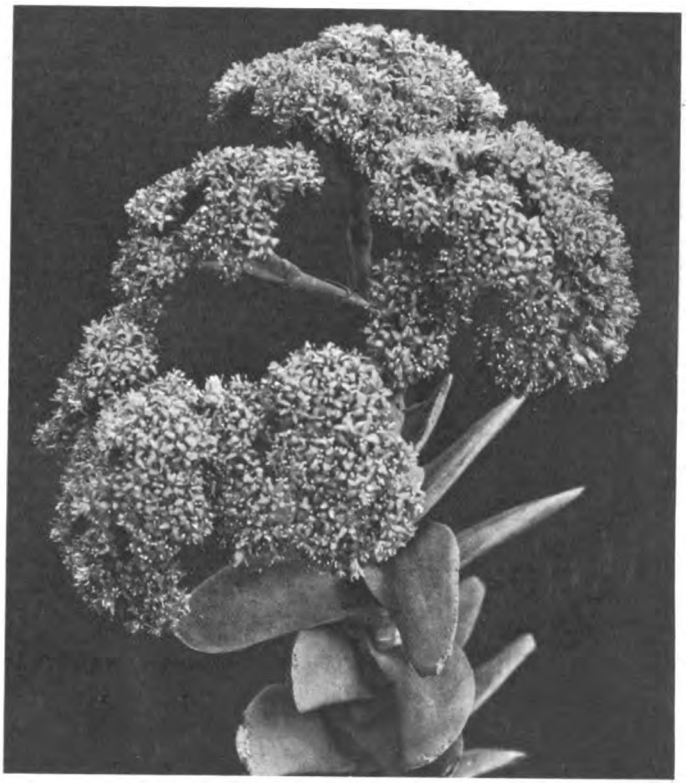
C. PALLIDA.—A massive plant with erect stems a yard high and pointed leaves 8ins. long. There is a good hybrid between this and Rochea jasminea.

C. PERFOLIATA.—Another large, striking plant.

C. PERFORATA.—Stems slender, erect, stiff. Leaves ovate, acute, green, joined together in pairs. A neat little plant.

C. PERFOSSA.—A handsome, dense-leaved, tall species.

C. PORTULACEA.—Forms eventually a large bush with a trunk as thick as one's leg. Much branched, with spathulate dark green, red-edged leaves.



THE YELLOW-FLOWERED CRASSULA FALCATA.

C. PSEUDOLYCOPODIOIDES.—A very interesting plant, in spite of its nine-syllabled name. Like lycopodioides, but leaves longer, etc.

C. PYRAMIDALIS.—Most distinct and effective—a dark green, square column of densely overlapping leaves, topped with a round head of white flowers.

C. QUADRIFIDA.—Most like perfoliata.

C. ROSULARIS.—Flat-growing, rather large, with upright, compound racemes of bloom.

C. SCALARIS.—Of remarkable appearance; grows prostrate with dense fleshy leaves, all erect and parallel.

C. SCHMIDTII.—Comes near impressa.

C. SPATHULATA.—Slender, leaves stalked, with a pretty lax inflorescence of pink blossoms.

C. TETRAGONA.—With erect stems bearing green, pointed leaves, recalling Sedum altissimum.

C. TURRITA.—A very queer plant, forming a little leafy pyramid with inflorescence like a milfoil.

If we include the rocheas with the crassulas, we add several species which greatly enrich the genus. The fine R. coccinea has already been mentioned. R. jasminea has very long, tubular white flowers. R. odoratissima is very fragrant, which few of the crassulas are; a stiff, erect plant with white flowers in rather dense heads. R. versicolor is rather like a pinkish R. coccinea.

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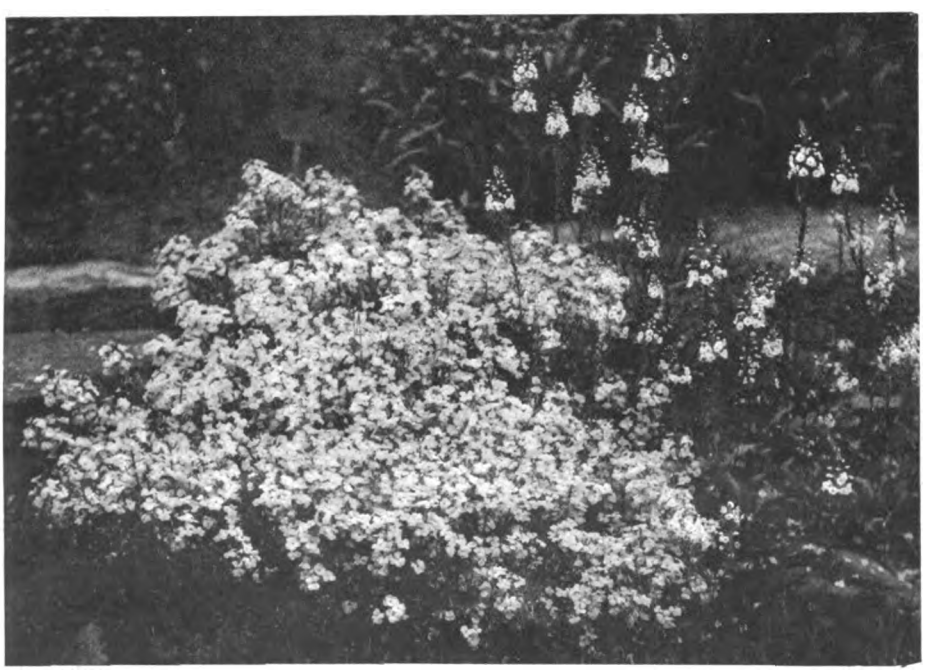
NOTES OF THE WEEK

DIPSACUS: THE WILD TEASEL.

COMPARATIVELY few gardeners grow dipsacuses, or, indeed, know anything about them, unless it is to associate them with weeds and other interlopers, yet it has to be said of them, given the right environment, they have a beauty of their own and are worthy of cultivation. Demand creates supply, but in the case of the plant under notice it is rare that one observes any offered for sale, and you may scan seed catagloues in vain to secure this wilding. Certain writers give them short shrift, content to dismiss them as being of the annual or biennial order, coarse in growth, being found in woodlands and stony places, but have no word of praise for them for the garden. Last autumn, when in the garden of a friend, I came across a colony of dipsacuses which had sprung up on a little promontory in his rock garden. Probably the seed had been carried there in a fresh deposit of soil. It was the tall variety D. laciniatus, with cut foliage, and the stalks produced from the centre of the plants were full of thistle-like heads, then greenish purple in colour and very attractive. As the season advances the bright tints leave them a dull greyish brown, and they are found useful for winter decoration along with echinops, eryngiums, statice, etc. A few months ago I was in a village and happened to find my way off the beaten track to an old stone quarry long since left to itself, judging by the plants about it and the wildfowl which had found a sanctuary among the reeds in pools, the result of excavating generations ago. There I found young teasels springing up in all directions, as they had done year after year. The best plants appeared to be those growing between the fissures of sandstone "where there was not much earth." Carefully lifting some of the smallest, I brought them home and quartered them in my little rock garden in somewhat similar surroundings, and, notwithstanding long weeks of drought, they are holding their own. Seed is easily obtained by shaking the heads of dipsacuses after they are dry and sowing them out of doors in almost any kind of soil in May, treating the plants as biennials, much in the same way as one does a Canterbury bell. One cannot introduce them in a border very well, but there are places in a garden where their presence would be appreciated, particularly by those who have flowers for winter decoration in view. I am informed that before the introduction of machinery for brushing up velvet that heads of teasels were used, and at one time were largely grown for this specific purpose.—W. LINDERS LEA.

CHEIRANTHUS ALPINUS.

FOR spring bedding one frequently hears the praises of Cheiranthus Allionii sounded, because of the rich orange colour of the flowers, but seldom indeed is any mention made of C. alpinus, the lemon yellow blooming sort which makes a capital tenant for a rock or wall garden. I have looked through lists to discover where seed can be purchased but have not yet come across it. Last year in a packet of seed of C. Allionii three or four plants of alpinus came up. This variety is more compact than Allionii, and I should describe the colour of the flowers when they first open as a greeny yellow, fading to a lemon yellow, extremely pretty in May. There used to be grown, years ago, if I remember rightly, a double form of C. alpinus under the name of Harpur Crewe. It was very attractive in the border in the early part of June. I am of opinion that it was perpetuated from cuttings mainly, and if this is so, it will probably account for its disappearance, most double flowers yielding little, if any, seed. I wonder if any reader can throw any light on C. alpinus or C. Harpur Crewe.—W. F.



THE LEMON-YELLOW WALLFLOWER C. ALPINUS TOGETHER WITH VERONICA GENTIANOIDES.

A NOTE ON POTENTILLA FRUTICOSA.

DR. PRAEGER, in one of his articles in THE GARDEN called Potentilla fruticosa "that kaleidoscopic 'typus polymorphus,'" and with every reason. It is really high time that someone in authority settled the type and various forms of this charming, but bewildering plant. Mr. Bean in his "Trees and Shrubs," mentions the type and eight varieties; several others have been added since his book came out. Although this invaluable late summer-flowering shrub is rapidly becoming more popular, yet many of them are sold without varietal names. Here is surely a case where proper distinction by varieties would be of great assistance to the gardener, for the varieties vary considerably and some are far better than others. They can roughly be divided into three groups: the white-flowered forms, the dwarf, and the larger yellows. By far the commonest and the best of the whites is var. Veitchii, with greyish-green leaves which are covered with very fine hairs. The variety Vilmoriniana is far less common, although I have occasionally seen it grown as Veitchii. The leaves of Vilmoriniana are distinctly silvery and the flowers have a creamy tinge. Leucantha, I have never seen, to my knowledge, and, indeed, have never seen an adequate description of this variety. Could any reader supply the information?

Of dwarfs there are two, var. pyrenaica, of close habit and clear yellow flowers, and var. parviflora, one of Purdom's Chinese varieties. I have seen this quoted as being the same as Farrer's Kansu plant, No. 188, but that is not the case.

Now come the larger yellows, headed by the type which is still to be found wild in the British Isles. Even this varies considerably, but as a rule the leaves are larger and the flowers smaller than in the named varieties. Mr. Bean mentions two varieties, grandiflora and micrandra, which I have never seen to my knowledge. Var. ochroleuca is one of the commonest in gardens and is that which is usually sold as plain P. fruticosa, without any varietal name attached. The flowers are lemon yellow and the leaves are greyish-green.

Now comes the difficulty: Farrer's Kansu plants, which are rapidly spreading through the country. I have one of his original plants, under No. 188, which is particularly floriferous and is frequently in flower until late October. The flowers are not so large as in many forms and in colour are between buttercup and lemon-yellow. The leaves are quite silvery, but have only a few hairs. It is planted on the top of a dry bank and is about 4ft. high by 4ft. through. I have also two cuttings from another of his original plants at Ingleborough, which came out of the same seed pan as my large plant. These cuttings are now five years old and are entirely different from my original. They are more erect and not so bushy in habit. The leaves have no silver in them and the colour of the flowers is almost golden, it is so bright. These are infinitely better than my original plant and are about the finest P. fruticosa I have ever seen. What is this variety and if it has no name, will somebody kindly name it? There must be plenty of it about, for Farrer scattered it generously through the country.—E. H. M. C.

TWO VALUABLE AMARYLLIDACEOUS PLANTS FOR THE AMATEUR.

AMONG the amaryllidaceæ there is quite a number of popular plants with large and beautiful flowers, that can be successfully grown in the living-room of our ordinary houses. Clivias, for instance, make excellent house plants, and C. miniata, or Imantophyllum miniatum, is an old-fashioned plant, not only of the conservatories, but of the window in the living-room. A good many improved horticultural varieties of it have been raised within the last half of the past century, with larger and darker flowers than the type has.

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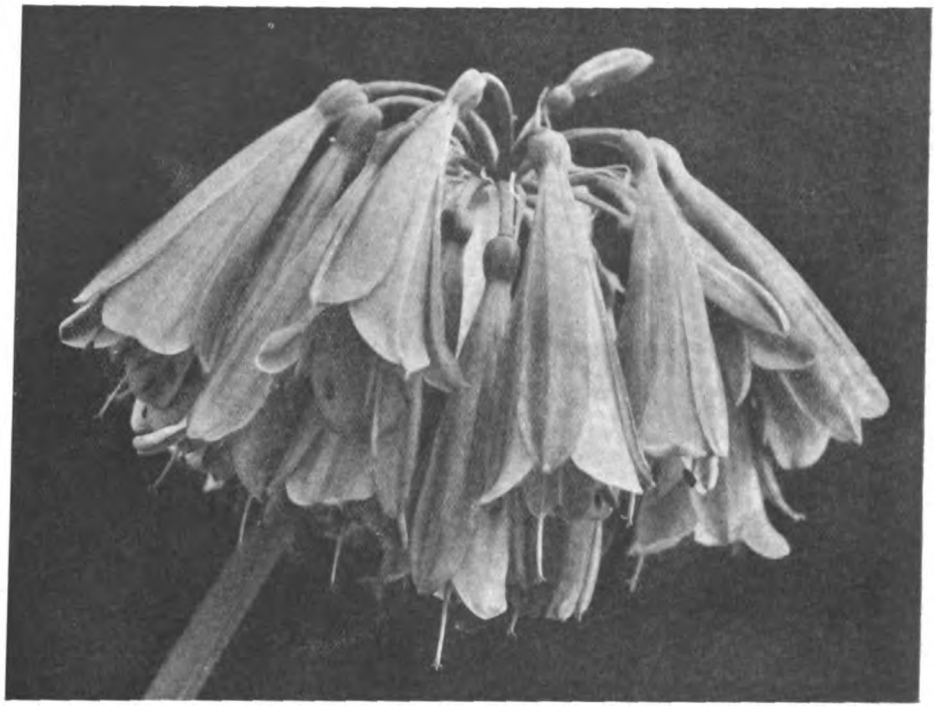
Besides C. miniata from Natal, the genus is represented in our gardens by quite another type from the Cape Colony, C. nobilis, or I. Aitonii, of which the flowers are not erect but pendent and have a more narrowly funnel-shaped perianth. The illustration shows a form rather like the typical nobilis, but in reality a hybrid between that and the former species, of which, however, little, if any, influence can be observed. This hybrid, C. cyrtanthiflora, was raised about 1866 by Charles Raes, one of the head gardeners of Louis van Houtte, the then famous Belgian nurseryman. It was first pictured in the "Flore des Serres," plate 1877, in 1869-70, and the plant of which I took the photograph agrees well with van Houtte's illustration. The flowers have the same greenish tipped segments as C. nobilis. I do not know if this cross has been repeated; it would certainly be worth while to try it again to produce a form more similar to C. miniata, at least in the shape of the flower and its colour. As to the treatment, there is no difference between the two species of clivia. They have thick, fleshy roots and need rather large pots and a rather rich soil, but good drainage. During the winter the plants have to be kept dry and cool. Their flowering time is usually from April to June.

The Spider Lily, Hymenocallis speciosa, from the West Indies, is well known, too. Its flowers are of a rather curious shape, the perianth being salver-form with a narrow cylindrical tube and linear segments spreading like the filaments which are united below into a small toothed cup. The colour is snowy white, and the fragrance is sweet, like vanilla. The leaves are obovate-lanceolate and distinctly petioled. There is another type in the genus with sessile strap-shaped leaves, and somewhat different flowers with a larger cup and short and incurved free filaments. Of this group, sometimes called Ismene, H. calathina is the best known species, from Peru and Bolivia.

The treatment is about the same as that for clivias. They like a mixture of turfy or peaty loam with sand. The bulbs usually improve with age when carefully treated and re-potted. H. speciosa flowers in winter or spring, and can be grown successfully in any living-room suitable for plant cultivation.



THE HYBRID CLIVIA CYRTANTHIFLORA.

Unfortunately, most of the living-rooms of our modern houses are less suitable for plants than the less carefully equipped ones of our grand-parents. The atmosphere in our rooms is usually too dry and so is injurious to plant growth. The plants suffer more from too much heat and too dry air than from a lack of light. But, of course, any room where plants are to live should be well aired and full of light.—CAMILLO SCHNEIDER.

WEEPING TREES.

WEEPING trees, or trees with pendulous branches, have always a fascination for the ornamental gardener and the country possesses some fine specimens to-day as a result of the decorative efforts of a past generation. The amateur's garden is not altogether suited to the cultivation of such trees, except the smaller kinds; the large trees need more than actual growing space to be at their best. These who have large gardens have not the courage, very often, to spare the cash necessary nowadays for really good specimens, so that such trees are difficult to procure, nurserymen only growing what there is a demand for.

Weeping oak, ash, beech, birch, willow, elm and other kinds may be seen when motoring through the country, and perusal of books on trees shows that these weeping trees have been made use of during the last century or two—earlier records are not sufficient to tell whether or no they were popular before that. Of course, since most kinds are raised by grafting or budding or are obtained from one particular corner of the world, it would be folly to expect to find them common before the advent of easy transport. Records seem to show, to take one example, that the weeping ashes can all be traced to a common ancestor discovered in Cambridgeshire 200 years ago, yet now we have several varieties of weeping ash, with quite obvious differences.

Such pendulous trees are always elegant and attractive, but, I myself like the beeches best of them all. Still, I know of many fine elms of stupendous spread and live near an ash which hangs limp from a graft nearly 40ft. from the ground; the birch and the Babylonian willow also are graceful, and since the name "weeping" so fitly applies to all these it seems invidious to select one as of merit outstanding above all the others.—CLYDESDALE.

THE SPIDER LILY, HYMENOCALLIS SPECIOSA.

HERBACEOUS PHLOXES.

FEW plants present us with a more agreeable display of colour at this time of the year, than do the herbaceous phloxes. A good deal has been written from time to time on the value and beauty of these plants, but the fact still remains that these delightful flowers are not grown, or given, the attention they deserve.

Phloxes are fastidious as to soil and position, and the ideal necessities are not obtainable in every garden. They like a deep, rich, fairly substantial loam, but all soils can be improved upon by deep trenching

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and at the same time working in some well decayed farmyard manure.

Phloxes prefer a semi-shady position where they get plenty of air and light, but are sufficiently protected from the direct rays of the sun during the hottest part of the day. Brilliant sunshine the whole day long will bleach the bright crimson and scarlet shades.

They also make a charming addition to the bog garden, where the position is moist, but not wet. Another pleasing effect is obtained by planting them in bold groups by the side of ponds and streams. An essential point in the cultivation of phloxes, either in beds or on the herbaceous border, is they should not be overcrowded or overgrown by other plants. They prefer plenty of room, otherwise they get weak and spindly, and in a good many cases develop disease.

Attention should also be given to staking, as the rough winds and heavy rains generally experienced during the flowering season, cause the flower stems to break off at the base if they are not supported. Staking should be done not later than May, so that the young growths can be tied up periodically. It is also advisable to thin out the growths, and only leave about five or eight, according to the size of the plants. This treatment will result in a more sturdy plant and finer flower heads than otherwise could be obtained had all the growths been allowed to develop.

There are two good methods of staking, one to stake each individual growth with a slender cane tip, or if this will take up too much time, to resort to the more general method of using three stouter canes placed around the plant, and loosely tie or sling each growth to them. To use one stake and tie the whole plant to it, produces a hideous effect, and it would be advisable rather to leave the plant to support itself. During the last few years the herbaceous phlox has been greatly improved upon.

A BORDER OF PHLOX LA NEIGE.

As the selection is such a large one, it is nearly impossible to detail a special list, as tastes differ, but to introduce a few of the best and most popular would probably be more useful. In making a selection of phloxes it is advisable to study the catalogue which gives you the most detailed account concerning colour of flowers and height of plant when full grown, as they vary in height from 2½ft. to 4ft., which is a considerable difference in grouping or in the herbaceous border.

P. Frau A. Buchner, P. Mia Ruys and P. La Neige are all good white forms. The first has distinct rose shaded buds, and a pink shade lingers in the petals of the flowers for a day or so after that they are pure white. Produced in fine heads, 3ft. high. The second has pure white flowers and is very free flowering, 2½ft.

There are several good pink and rose shades which include P. Baron von Heeckeren, with fine salmon pink flowers, 2½ft. P. Elizabeth Campbell, a popular plant, with charming pink flowers, with a white centre, 2½ft. P. Jules Sandeau, produces fine trusses of soft rose-pink flowers, 2½ft. P. Selma, another very popular pink form, which will grow to a height of 4ft. P. Baron van Dedem, is a brilliant orange scarlet and looks well planted with the satin pink Sidalcea Sussex Beauty. P. General von Heutsz, might be described as a cerise scarlet, with large trusses of flowers, 3ft. P. Homeland, a new variety with large brilliant orange-scarlet flowers, proves quite a charming addition, 3ft.

Among the blue shades, P. Antonin Mercie is one of the best, with soft lavender blue flowers, with a large white eye, which is very effective, 3ft. P. Iris is also another good blue or perhaps better described as a violet blue, 3½ft.

This selection is only a few and could be added to by a score of others, but it would be impossible, as I stated before, to determine the best varieties with such a riot of colour to choose from.—R. C. JOLIFFE.

CORRESPONDENCE

CANADIAN FLOWERS FOR OUR WOODLANDS.

SIR,—I have read with much interest Miss Jekyll's note on "White Flowers in the Woodland," published in THE GARDEN of August 8th, which has just reached me on tour. May I put in a plea for the use of Canadian flowers—white and coloured—in woodlands at home?

The wealth of the Canadian flora is not realised at home, nor do gardeners there know that most of the Eastern flowers from this country demand woodland and moisture, and that, if they were grown thus, satisfactory results could be obtained, in a certain number of cases, though I quite acknowledge that Canadian plants are by no means easy to "do" at home, owing to lack of snow in winter and the general dampness of the English climate. Still, there are some that might, with advantage, find a home in English woodland and water gardens, as I have found from experience, because in the four years of my life here I have sent a great number of species to my Essex garden and the gardener finds that they have thriven, and in some instances improved, with cultivation.

Of white woodland flowers from here that would flourish at home are the various sorts of trilliums and the "Mayflower" (Epigæa repens), though this is one of the difficult things to satisfy, as it needs shade, moisture, a mossy surface to root in and a liberal sprinkling of fir needles and rotted fir branches to give the soil the acidity it requires. But it well repays any care bestowed for it blooms early and is extremely fragrant. There are violets, too, ranging from white to mauve-blue and yellow. Among low-growing plants that would do well in England are the twinflower (Linnæa borealis), found in practically every woodland of the Dominion; Goldthread (Coptis trifolia); Mitchella repens; and creeping snowberry (Chiogenes hispidula), whose china white ovate berries are most attractive. This dainty plant will quickly clothe dead stumpsin a place where it is happy. Clintonia borealis, with its wide lily of the valley-like foliage and Clintonia uniflora are other gems, the former having bright blue berries on a long, upright stem. The dodecatheons, again, thrive in semi-shade and moisture, and are truly lovely when seen in masses, as one sees them out here. Chimaphila umbellata is charming, and has the advantage of being an evergreen; while the pyrola family should not be forgotten, though they are rather maddening plants to grow and still more so to try to lift.

For anybody who has the requisite shade and real wetness of soil, the lady's slippers are a delight, whether the showy spectabile, pubescens, acaule, montanum, or the frail little Calypso borealis, pogonias and Arethusa bulbosas; but these are among the "miffy" things which will, or will not, thrive according to their mood and need a good deal of care and attention.

Of ferns from here there is no end, the finest, of course, being Adiantum pedatum, with its shiny black stems and feathery fronds; while among taller-growing woodland plants the Actæas—rubra and alba—should be included, for the former has the most glowing mass of crimson berries and the latter a head of strange black and white berries that has earned it the name of "Doll's Eyes," and which nobody who sees it at Thorpe Hall fails to notice. Smilacina racemosa and a large variety of so-called Solomon's Seal are other plants that should be added to the list, as they have wonderful berries at this time of year and form graceful masses of foliage effect near water, and in shade. I have touched only on the woodland plants, but there are hundreds of others that thrive in the open spaces of the prairies, and yet more that nestle in the crevices of the Rocky and Selkirk Mountains; while, surprising as it seems to the English mind, there are several species of cacti to be found on the prairies! This in a land with a temperature that frequently drops to fifty below zero.—EVELYN BYNG OF VIMY, *on tour in Alberta*.

INCARVILLEA OLGÆ.

SIR,—Lest anyone should purchase Incarvillea Olgæ under the impression that it is as hardy and perennial as the handsome I. Delavayi and other well known species, it may be well to warn them against doing so. I. Olgæ—which, by the way, is sometimes called I. Koopmannii—is not hardy in our gardens, and in some can only be treated as a biennial. It grows about 3ft. high, and has fine, rather feathery foliage, and small, rose-coloured, trumpet-like blooms. It is pretty in its way, but its short life is much against its value in our climate, while its beauty is not so transcendent as to warrant its inclusion in our gardens, now that we have so many lovely plants of undoubted perennial nature.—S. A.

ROSE ON THE ITALIAN LAKES.

SIR,—With regard to the rose grown on the Italian lakes, concerning which there has been some discussion in THE GARDEN, it is not Fortune's Yellow, as several of your correspondents suggest. It is quite different both in growth and colour. Its history is as follows: About 1880 the late Mr. Henfrey of the Villa Clara, Baveno, saw it growing

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in some nursery garden in England, and had it sent out to the Villa Clara. There it grew and flourished. The nurserymen at Pallanza had it, and from there, no doubt, it went to Como. I got some plants of it about 1900, and sent it home to Scotland, where I have it now. I also took some plants to Hyères, where it still grows. It is not quite hardy in our severe winters, but does well on a wall or house. It requires to be protected in winter here, but I have no doubt that in the south of England this would not be necessary. We call it the Baveno Rose.—DAVID W. SMYTHE, *Perth.*

A FINE BED OF ASTER THOMSONI IN A READER'S GARDEN.

FREESIAS.

SIR,—I do not agree with Mr. Van Tubergen's remarks anent the naming of Freesia Wistaria. I know it has nothing to do with wistaria botanically, but its colour is identically the same, and I think this gives a plain and accurate description as to the colour and is much more appropriate than naming after a person or giving it a name that has no connection with the flower, either in colour or in any other way. The reason for naming was this: On the occasion of its being put up for award I wanted a name for it. Mr. R. Wallace, Mr. H. Chapman and someone else were discussing it with me, when Mr. Wallace suddenly exclaimed, "There's the name," and pointed to a group in the R.H.S. Hall which contained some plants of Wistaria sinensis. On taking over a plant of the freesia it proved to be identically the same shade. Thus was it christened. Mr. Van Tubergen does not object to using the *English* name of a flower for some of his varieties, which have nothing—more or less—in common with each other than my "Wistaria" has to do with its Latin namesake.—G. H. DALRYMPLE.

ASTER THOMSONI.

SIR,—Having seen a paragraph in a recent number of THE GARDEN about Aster Thomsoni, I send you a photograph of our beds of it now in bloom. We found it here five years ago and have ever since regarded it as the easiest and most satisfactory thing we have. It requires no coddling or staking, blooms for two months or more, and is easily multiplied by division in March.—WINIFRED MACNABB, *Chepstow.*

THE UTILISATION OF GLASSHOUSES.

SIR,—With reference to the article on "The Utilisation of Glasshouses," on page 469 of your valuable journal: In defence of the "disgruntled gardener," let me say that not one of the cultures recommended by your contributor could be successfully treated in the greenhouses under my charge, for the simple reason that it would be quite impossible to maintain the necessary temperature to attain success. I have to be content if my beans realise 2s. per pound wholesale, and tomatoes 1s. It is quite impossible to have them ready when prices are better, as you will realise when I state the conditions. My best houses were erected by my late employer's grandfather, and as my employer died recently at the age of eighty-six, you will have some idea as to their condition. They are heated with flues, and the best we can do is to keep them frost-proof during frosty weather. I have a range heated with hot-water pipes, but here again, owing to lack of piping, I can only secure a temperature of 45–50° during frosty weather. Owing to my employer not seeing his way clear to have the roofs seen to as regards paint, glazing and puttying, I am now busy attending to this matter myself, and am now on my third hundredweight of putty and an even larger quantity of paint, in the effort to secure a more watertight condition of the roof, ready for the time when the houses are filled with chrysanthemums.

Let me say that the conditions here noted are general in all the big places in this district and should Mr. Wells be called in, in an advisory capacity, I trust he will be fair to the gardener, who is already working under such unfavourable conditions, and point out to the employers the sheer impossibility of producing such highly profitable crops as his article referred to would lead them to expect.—HEAD GARDENER, *Chelford.*

AN ENQUIRY.

SIR,—Some months ago, from one of your correspondents, I learned of an apparatus which automatically turned on at a certain temperature an electric heater and turned it off again on the temperature rising to normal. This seemed a very useful scheme for people with greenhouses who did not employ a full-time gardener, and I made enquiries of the electric light company here and find the apparatus can be obtained. It is in use for other purposes, but I have not been able to get into touch with anyone who has used it in a greenhouse, and before I order it I should like to consult someone who has had it in use for greenhouse purposes.

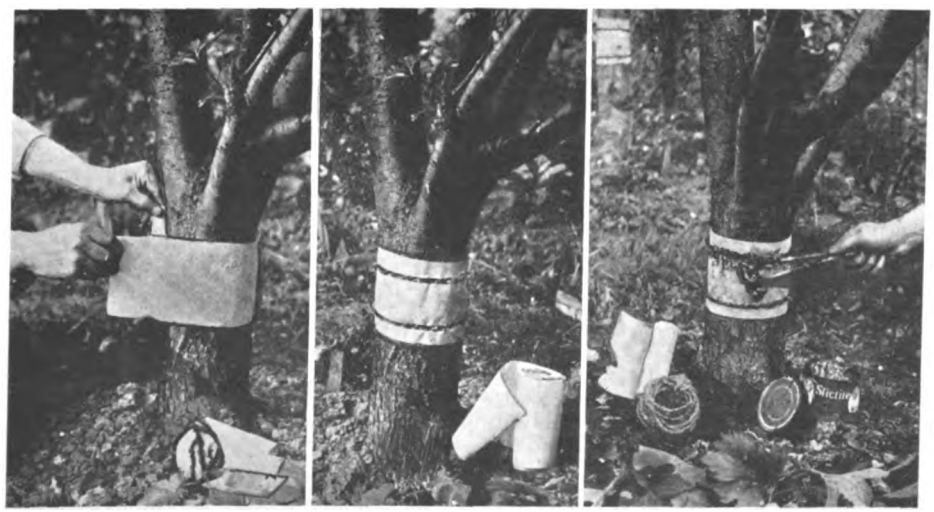
The points I should like practical experience upon are: (1) The size and strength of the lamp required for a 20ft. by 10ft. greenhouse; (2) the position in the house; and (3) generally, the efficacy of the apparatus.

It is possible that some of your readers may have installed one, and I should be grateful to be put in touch with him or them.—E. S., *Bromley, Kent.*

FRUIT TREE BANDING: A NECESSITY TO COMBAT THE WINTER MOTH

THE fruit grower who has had the mortification of seeing fruits of the greatest promise fall to the ground just before they attain eatable size, will appreciate the wisdom and value of protecting his fruit trees from the depredations of the insects that cause the trouble. One of the best means to combat these is by the application of sticky bands around the trunk or branches of the tree. This precaution, however, does not always have the desired effect, on account of indifferent placing of the trap upon the tree. The insects will take advantage of the smallest loophole or fault that enables them to evade the sticky substance and thus defeat the protective measures undertaken by the gardener. This should be remembered when the bands are being placed in position.

Tree banding consists of putting a width of grease-proof paper around the trunk of the tree and tying it there securely by means of string or specially made coir yarn. Upon this is spread a sticky substance, which effectually arrests the progress of any insect crawling up or down the tree and holds the depredator surely until it succumbs to the inevitable. In this manner many an



Place the band of grease-proof paper in position. *Tie the same top and bottom with string.* *Apply the sticky substance with an old knife.*

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insect is caught and destroyed that would have been the cause of great destruction among the fruit next season.

One of the worst of fruit pests is the winter moth. The females of this moth, as well as those of the umber moth and March moth, possess no wings, and they crawl up the trunks of the trees in the autumn to lay their eggs on the branches. Should this be accomplished successfully, between two and three hundred caterpillars are let loose in the spring to do their deadly work upon fruit and foliage. It pays, therefore, to take strong measures to protect the trees from these enemies, and one of the most efficacious is tree-banding.

The best way to perform this operation is as follows :

Procure some good grease-proof paper ; this can be bought in rolls of suitable width. The object of the grease-proof paper is to keep the sticky compound from touching the bark of the tree, the paper presenting a surface through which grease or oil cannot penetrate. The paper is cut to the required length, using sufficient to meet around the trunk of the tree. It is then tied tightly round the tree, about an inch from the edges of the paper, top and bottom. The ties must be very tight, or insects will crawl underneath the paper and thus reach the branches.

The sticky compound, of course, will have been procured—there are several makes on the market—and it must be spread upon the paper about one-sixteenth of an inch thick, evenly and well distributed, so that no bare spot is left upon the paper. A wedge-shaped piece of wood, with a chisel-like edge is a good tool with which to do this, or the blade of an old dinner knife.

Tree banding should be performed near the end of September or beginning of October—certainly no later, as the moths begin their movements about this time and many may be caught on the freshly-applied substance ; indeed, quite an accumulation of insects will form on the band, for not only wingless moths, but those on the wing, with wasps, earwigs, woodlice and other creatures will find themselves trapped in this way. These accumulations must be periodically scraped away, or other insects will succeed in crawling over the dead bodies without becoming involved in the sticky mess.

The bands can remain on the trees all the year round, if desired, and on no account should they be removed until the end of March.

There is no particular place on which to put the bands. When convenient, they should be affixed round the trunk a foot or more from the ground, according to the height of the bare trunk. Should there be two or more main branches arising from or very near the ground, each one should receive a band ; and where there are stakes or other supports, these must be banded also, otherwise the insects will reach the upper branches by crawling up the stakes. This latter precaution should not be lost sight of. If possible, fences or walls upon which trees are trained could be smeared with a layer of the sticky substance a short distance from the surface of the soil, and certainly the supports of pergolas or archways on which trees are trained should receive attention by way of a sticky band. While putting up a fight against the foes of our fruit trees, we may just as well take every measure to make the victory more certain and the saving to our valued fruit a profitable and gratifying fact.

H. A. DAY.

GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and on the Cultivation of Plants.

CULINARY PEAS.

THE culinary pea is one of the choicest vegetables grown and an early dish is always highly appreciated. This being so one tries slightly different methods, situations and varieties to attain this end. There are certainly many early varieties to pick and choose from, but so far we have not seen or grown one to surpass The Pilot as a first early pea ; one would naturally think that the extra adjective—first—should make a difference, and so it does in the case of The Pilot.

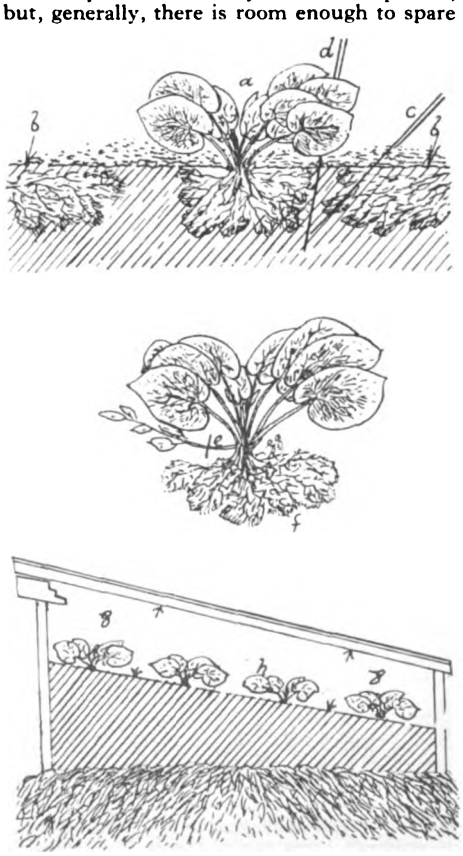
One season we grew as first earliest Laxtonian and Thomas Laxton ; the first named variety was sown on March 15th and Thomas Laxton on April 1st. Laxtonian is a dwarf growing pea and a splendid cropper, producing many large pods in pairs. Our first picking from this variety was made on July 14th. Now Thomas Laxton was sown fully a fortnight later—both kinds being grown side by side—yet a picking of peas was obtained on the same day, *e.g.*, July 14th. It should be pointed out, however, that the pods of Thomas Laxton are not so large as Laxtonian, nor are there such a number of pairs borne by the plants of this variety, yet apart from these differences Thomas Laxton is a fine cropper.

This year The Pilot and Peter Pan were sown on March 13th and although the former is a tall pea, it produced pods ready for picking on July 4th, fully a week in advance of the dwarf Peter Pan.

We have tried a comparatively new variety called Giant Stride, said to be " The largest-podded dwarf pea in the world " ; it is classed in the early section, so we had seed sown on the same day and on the same border as The Pilot and Peter Pan, and the pods were ready for picking on the same date as Peter Pan. The well known Gradus is classed as an early—yet not as a first early—but strange to say we sowed seed of it and The Pilot on April 13th and pods were ready for picking on both kinds about the middle of July.—D. A.

LIFTING AND PLANTING VIOLETS IN FRAMES.

THE fragrant violet is appreciated in every garden, and even in the smallest a few plants may be grown during the winter and spring months. A tiny frame can be placed in a backyard and soil only used for the plants ; but, generally, there is room enough to spare in the majority of our gardens for a hot-bed on which to place soil and frame. In every case, the present is a good time to lift and replant the violets, so that the plants will get well established before severe weather comes. Violet plants dislike cold draughts : in summer these predispose the plants to red spider ; and in winter they retard growth, root-action and flowering. Select a sunny position for the frame and one on a dry base. It is not absolutely necessary to have a hot-bed, but an old cucumber bed would be excellent, if available. Ordinary loam may be used, but such would be improved if some old potting soil and fibrous loam could be added. The plant, *a*, should be lifted by inserting the tool as shown at *d*, and not as shown at *c* ; then the roots will be lifted intact, and the roots of other plants, *b*, *b*, will be free from mutilation too. Cut off young runners, *e*, and spread out the roots, *f*, when planting. The plants, *g*, *g*, should be almost close enough to the glass to touch it. Place the violets, *h*, about 10ins. apart—double-flowered sorts 8ins.—water, and ventilate freely after the first fortnight. Plant firmly, but do not, at any time, tread upon the soil.



SWEET WILLIAMS.

SO long as there are gardens, this old time flower will survive. In fact, I believe it grows in favour as the time goes by. The newer types of self-colours of pink, scarlet fawn, etc., are all very beautiful, but the old-fashioned mixed types of our old English village gardens will never lose their popularity. Some three years ago my master took me over these gardens at Hurworth-on-Tees, and here, there and everywhere were plants of these old-fashioned flowers, all ready to be pulled up, but in going through them I found very many growths with a long, straggling stem, so I thought the best plan to save the type without much trouble would be to cut off the best growths and treat them as cuttings. This I did, prepared them, and inserted them in lines where I would like

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them to make a mass effect, and by attention to essentials, the whole bed turned out a most successful experiment, and made a very effective display. I have already made another bed and the same success seems assured. I do not know if other readers of THE GARDEN have done the same thing, but anyone who has similar old, leggy plants with growths of cutting size, will find the plan a most satisfactory one in every way. Therefore, I pass it on.—VICTOR HUGO LUCAS, *The Manor Gardens, Hurworth-on-Tees, Darlington.*

MICHAELMAS DAISIES—THE ADVANTAGE OF FREQUENT DIVISION.

FEW perennials grow with greater exuberance, when planted in congenial soil, than starworts. In some instances rapid growth is their undoing, and flowers become puny and insignificant; worse than this, when planted in a border, they usurp space rightly belonging to other things. It is therefore, of the utmost importance, if one desires to maintain anything like order in the garden, to divide clumps every two years, and this may be done in late autumn, when weather serves, or early spring. Left alone, Michaelmas daisies soon make abnormal sized bushes, which, for a time may be permitted on the margin of a shrubbery where room is available, but in the garden they are apt to become something of a nuisance when other plants in their near proximity die off through the gross feeding of the asters.—CLAREMONT.

PLANTING OF TREES AND SHRUBS.

EVERY year large numbers of valuable trees and shrubs are lost through careless planting, some because the site is not properly prepared, and some the larger proportion, because the site has been prepared in quite the wrong position. This refers very largely to those subjects which are generally considered half-hardy and in some few cases tender.

As regards the actual preparation of sites I shall have little to say, except, perhaps, that it cannot be too strongly impressed upon intending planters that to dig a hole about the size and depth of the root of a plant is to court failure by the shortest route. Whatever the size of root, *i.e.*, of shrubs, trees, etc., it is imperative that the ground be broken thoroughly to a depth of 2ft. to 3ft., even if there is only a thin layer of soil overlying rock, chalk or clay, break it up, tear it out, and then, *when it is out*, break up the bottom another foot or so, leaving the loose stone, etc., to form drainage below the good soil which is now added; the importance of this I will explain later on.

Much has been written on planting, but, nearly always, something is omitted. Some important point, often the position. It is on this point I wish to dwell.

To begin with, I will select two prominent members of the order compositæ, olearia and senecio, shrubby varieties. These both come from countries where they get, broadly speaking, plenty of moisture in the season of active growth, but excellent drainage, and mostly dry conditions during their dormant season. Both groups of plants are considered more or less tender, and here lies my point: the tenderness or hardiness of these particular plants rests very largely indeed with the planter.

Leaving out of the question Olearia Haasti and O. macrodonta, the tendency of the average person is to coddle them; he or she seeks shelter for them, often at the expense of position. Shelter is not necessary for most of them, therefore do not plant them in those little nooks in front of the shrubbery border where often they get little sun, far too much winter moisture and no wind; how nice and warm they are, but, alas! how fatal to their well-being.

No, instead of this, select the most open and, above all, the highest and consequently best drained positions that can be found. Plant them in such positions; they are both sun and wind lovers and the majority will stand the very roughest gales; the leaves and wood get hard and ripened, growth is checked early in autumn and has ample time to fortify itself against winter weather. A dry root run in winter and a few degrees of frost does not touch them; they are hardy!

But what a different picture when planted in low, moist ground. They fade away, they become tender, and the fault is the planters.

In this note I do not intend to give a long list of varieties, but in conclusion I will give the names of a few other groups to which similar conditions apply. Notably *Leguminosæ:* adenocarpus, the less hardy genistas, erinacea, ononis, medicago, anthyllis, indigofera, carmichaelia, notospartium, astragalus, desmodium. *Fagaceæ:* nothofagus, not all. *Compositæ:* microglossa, helichrysum, cassinia. *Myrtaceæ:* some varieties of eucalyptus, leptospermums. *Chenopodiaceæ:* atriplex, eurotia, camphorosma. *Labiatæ:* lavendula, elsholtzia, perowskia, phlomis, teucrium.

This list could be considerably lengthened, but I have mentioned enough to show that it is not altogether the supposed hardiness or otherwise of any particular plant which counts so much as the position in which it is planted.

To mention a case, on this estate, which is very large and affords every position for which one could wish, three plants of Teucrium fruticans were planted, one on high ground (very exposed position), one on slope, where ground received much water draining from above, and the third plant almost at marsh level and well protected in all ways.

Last winter decided their fate as follows. Plant on high ground grown tremendously, hard and stocky; plant on slope just held its own; plant on marsh level, dead by midwinter. It began to droop with advent of slight frost and much rain. One other point and an important one with the subject under review, always plant in spring, neither early nor late.—JOHN HILL, *Paignton.*

LILIUMS IN THE NORTH.

TO have a fine display of liliums a start should be made about the middle of September, with such bulbs as L. candidum, L. excelsum and L. Regale. The old Madonna lily is certainly *par excellence* as a border bulb. The chaste and wax-like flowers produced on stout stems made a charming glow of white on our herbaceous borders throughout the latter part of July and well into August. The other kinds mentioned helped to make the lily show, but candidum being more numerous and so handsome, outshone the others; the flowers, too, are powerfully fragrant. The stems stood from 3ft. to 4ft. high, and from sixty-three stems 453 flowers and flower buds were produced; really a fine display. Our method of treating the bulbs when they arrived here in September was to make ready several 10in. pots, and set four bulbs—which were fairly large—in each pot, using a soil mixture of loam, old lime and sea sand. Then we set the pots in the late peach house, and not until the bulbs started into growth did they receive very much water. L. excelsum and L. Regale were treated in the same manner, but the bulbs of these kinds being smaller, pots of a less size were used, and under this treatment the bulbs made good progress, being well rooted, and having fine fresh green leaves and strong centres at the middle of December. In the autumn, two of the herbaceous borders were trenched and the plants overhauled and re-arranged, and on these borders stations were left for the liliums. It was a day in December, when the maximum temperature registered 52°F., that we set out the liliums in the open borders. Holes were taken out at the stations and a little good soil put in the bottom of each hole, and then all around the carefully turned out ball of bulbs—which each pot had contained. It was interesting to observe at the time that the border earth was not really cold at this late period of the year. In the month of March the rosette-like leafy stems of the liliums were strong and healthy and stood boldly out on the borders. L. excelsum was in flower a little before candidum, which expanded its first bloom on July 19th, while L. Regale was a few days later. The bulbs of L. Regale were somewhat small, but we hope for better results from this fragrant lily as the years go by.—DAVID ARMSTRONG.

A GOOD SITUATION FOR SENECIO GRAYI.

CULTURE OF ÆTHIONEMA GRANDIFLORA.

MANY people whom I know find the culture of the above plant very difficult. In fact, a few months ago a very experienced alpine nurseryman remarked to me that he regarded it as one of the most difficult plants to transplant and establish. For my part, I have found it one of the easiest, providing

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the conditions are right. My advice to those who wish to succeed with it is as follows: Choose the hottest and driest bank in the garden and dig a hole, part way down the slope, about 2ft. deep and 18ins. across. Fill this hole with broken bricks and mortar from some recently demolished building, to within 6ins. of the surface, and then plant the specimen in some of the lightest and poorest soil available. I have never found this treatment to fail. Only last winter I transplanted a dozen which had sent their roots down 2ft. into the brick rubble. Of these old plants, some of which were ten or twelve years old, only two died.

The plant is a native of the Levant, and apparently can only thrive in almost bone-dry material. In my garden it seeds itself quite freely, and youngsters frequently spring up near the parent plant.—G.

FRENCH METHOD OF CULTIVATING EARLY STRAWBERRIES.

AN interesting and somewhat unusual method is employed by some French gardeners for obtaining early, fine and delicious fruit in the open.

The largest obtainable barrel has holes, 2ins. in circumference and 9ins. apart, made all over its surface. One end of the barrel is knocked out, the other has a pivot placed through it. The barrel is well tarred and placed in a sunny, sheltered position in the garden. It is then filled with good loam, into which a liberal amount of well rotted manure and wood ash have been incorporated. This soil is firmly packed down, leaving a fine open tilth at the top of the barrel. A young strawberry plant is firmly planted in each hole (in the autumn, of course), and also 9ins. apart round the rim of the barrel.

Thus, in a small space quite a number of strawberry plants can be grown with very little trouble, for when once the barrel is planted, a copious daily watering, the removal of runners and turning the barrel on its pivot every day (to ensure all the plants having an equal amount of light), are all the "cares" which strawberries so grown require.

Moreover, a strawberry barrel is a beautiful sight when the green, white and red colouring of the leaves, flowers and fruit smother it. Owners of small gardens might do worse than try this attractive French method of growing strawberries. The plants and soil should be renewed every year.—VICTORIA SLADE.

SOME BERRIED SHRUBS FOR WALLS.

IT is not always advisable to plant subjects that grow close to the wall or require training to it in this manner. Of course, other cultivators may prefer such kinds of plants, and for filling in a small space they are undoubtedly the best. But if we, in imagination, look at a long wall, I think the best effect would be obtained if a few specimens of a more or less bush form were mixed with those clinging close to the surface of that wall. Furthermore, several dwarf-growing plants, such as skimmias, planted at the foot of the wall and allowed, to grow almost without restriction, would add to the general effect, certainly they would add to the interest. Before any specimens are planted the soil should be prepared; if of a poor nature, turfy loam, old and fibrous, from an upland quarter, should be added; also some half rotted leaf-soil. Where the soil is clayey and some of the sub-soil from the foundations has been mixed with the surface portion, the leaf-soil and some old lime rubble will improve the quality generally. Rotted manure should be used freely where soils are light and poor. The following are a few suitable kinds: Akebia quinata, Celastrus scandens, berberis, pernettyas in variety, pyrus, the snowberry and the wild guelder rose.—GEORGE GARNER.

THE TREATMENT OF SALAD PLANTS.

EXCESSIVE moisture, both in the soil and the atmosphere, destroys more green salad plants than frost does. We all appreciate tender salad plants throughout the year; of course, we eat more of them during the heat of the summer months, but we ought to use them in the winter, too. Young plants of the cos lettuce should be grown well in the open border till the end of November. After this date, for about six weeks, there is not much new growth made in the open air, but if the plants are carefully lifted and transplanted about 9ins. apart in a rich soil in an old house or pit, the structure kept closed for two weeks, then carefully ventilated, the plants will soon make progress. Directly they are planted, water liberally once, then keep the soil dry on the surface. Early in January a teaspoonful of nitrate of soda to three plants and water. It is not necessary to tie up such cos lettuce to cause blanching, as, being so close together, they fill the whole space and blanch nicely, being fit to use early in the new year. Cos varieties of the hardy type may be grown in raised borders outside, but the cabbage varieties are the favourites. Sow radishes very thinly in a cold frame, they will be fit to pull in six weeks time, then defer any more sowings till mid-January. Beet will be in store and celery in the ridge, both being protected from severe frosts. Mustard and cress are best grown now in rich soil in boxes in a greenhouse temperature and the winter tomatoes will require about ten degrees more heat. If onions are scarce, start a few shallots in boxes of soil.

LIFTING AND STORING OF ROOT CROPS.

IN the kitchen garden the lifting and storing of root crops ought to occupy a reasonable amount of time because the supply of vegetables later on will largely depend on how such work is performed. The most important crop is, perhaps, the potato, but this was dealt with in a note in THE GARDEN of September 5th by Mr. Garner.

Onions can be lifted and thoroughly dried, and when ready, or on a wet day, the bulbs should be tied in small bunches and suspended from the roof of a dry, airy shed. A little frost will do onions no harm, providing they are dry; if not, their keeping qualities will be impaired.

Beetroots must be lifted, and, to prevent undue bleeding, do not cut off the foliage near the roots; it is best to leave a few inches of leaf stalk.

A frost-proof shed is needed, and the roots are placed in sand or sifted ashes. Carrots, salsafy, scorzonera and turnips need similar treatment.

The tuberous variety of artichoke is lifted directly the foliage dies down, or slugs will injure the roots if they are left in the soil for any length of time.

Parsnips are best left in the ground until they are required for the kitchen, the flavour being improved by a little frost. If we experience a spell of hard weather the bed may be protected with a sprinkling of litter or fern bracken. Celery will also need protection, and, like the parsnips, this crop is lifted when needed.—T. W. B., *Chepstow.*

MIGNONETTE IN POTS FOR WINTER FLOWERING.

A FEW pots of mignonette in the greenhouse late in winter and throughout the spring will add considerably to the attractiveness of that structure at a season when flowers, other than those from bulbs, are scarce. Extra fine spikes of bloom may be grown if a little trouble be taken with the plants. I well remember three pots of mignonette being staged at a spring exhibition; one pot contained one plant with one huge central spike, another contained one plant, stopped and induced to bear three spikes of medium size; the third pot contained three plants confined to one spike each. All were well grown and very beautiful, and readers may adopt all, or one, of these three methods of culture. To succeed, the cultivator should take note of the following hints: The present is a good time to sow the seeds; if sown too early the resultant plants are liable to bloom too soon and so cause disappointment. It is not wise to transplant seedlings, so the seeds should be sown in small pots filled with good loam and a small proportion of old mortar rubble. Drain the pots adequately, cover the seeds lightly, place the pots in a cold frame, water at all times carefully, thin out the seedlings to the desired number in each pot. Stop a few seedlings at the end of October or a little later; allow others to grow unstopped to flower first. Winter on a greenhouse shelf, re-pot in January and feed the plants when the large pots are filled with roots.—G. G.

VEGETABLE AND FLOWER SHOWS

VINCENT SQUARE

THERE is nothing of the showman about the Royal Horticultural Society. On September 8th last it was supposed to be Vegetable Day at their hall at Westminster, but the regular visitor might well have been excused for imagining that the clock had stood still and it was a fortnight ago, when gladioli were the flowers of the day.

But after looking around, the vegetables were found to be there, and very good vegetables they were, even though quantity was lacking. It may be that most of the thousands of Fellows do not care to exhibit, or perhaps the rather meagre schedule did not sufficiently encourage them to enter the lists.

Next to the collections of vegetables, which were admirable, came, in order of excellence, potatoes, onions, leeks, parsnips and carrots. Peas were very good, there were only four dishes and three of these were of Mr. Gladstone—the fourth was Duke of Albany. It was rather early for celery, but Brussels sprouts were as good as one would wish at Christmas. Potatoes were beautifully clean and perfect in shape. Perhaps the outstanding varieties were King Edward, Majestic, Abundance, Dargil's Early, Witch Hill Seedling and Katie Glover, but the general quality was very high. The chief prizewinners were Mrs. Jenner, Wenvoe Castle, Cardiff; Mr. R. Chetwynd Stapylton, Great Berkhamsted; and Mr. R. H. Ling, Berkhamsted, in the collections. Mr. G. Thorn, Wellesborough, for potatoes; Viscount Hambleden for immune potatoes, onions and saladings and various single dishes of vegetables. In the last named Earl Beatty, Mrs. Thorn, Mrs. Austin, Sir Joseph Tichborne, Rev. J. Davies, Mr. G. Thorn and Mr. H. W. Henderson won various first prizes.

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A splendid collection of pot fruits was again shown by Mr. J. C. Allgrove. His peaches, nectarines, plums and apples were models of cultural skill. Messrs. T. Rivers and Sons had pot vines bearing goodly bunches of fruit, peaches, nectarines, plums and apples of enviable quality.

Chief among the flowers were dahlias, which we note elsewhere. Gladioli were again very numerous and well shown by Messrs. R. H. Bath, Limited, the Orpington Nurseries and Mr. A. Edwards, who all set up very attractive collections. The Orpington Nurseries had several good seedlings, and Messrs. Bath showed Sapho, a slaty puce coloured flower, and Romance of orange base shaded with puce. But generally the varieties were the same as a fortnight ago.

Roses were fresh and good, though perhaps a trifle small. Messrs. Chaplin Brothers, Messrs. Wheatcroft Brothers, Mr. George Lilley and the Rev. J. H. Pemberton were the exhibitors. Anne (deep pink) and Bertha Turner (of lighter colour) were good novelties, while of the older sorts Betty, Lady Inchiquin, Innocence and Mabel Morse were very charming.

Some huge spikes of Lilium tigrinum splendens grandiflora were shown by Messrs. R. Gill and Son, who said they grew it 15ft. high with thirty-eight flowers on a stem.

Among general border flowers Kniphofia Mount Etna, shown by Messrs. Isaac House and Sons, was magnificent. Messrs. B. Ladhams, Limited, had an interesting collection of hardy lobelia seedlings. Astilbe Granat, by Messrs. M. Prichard and Sons, is very decorative, and they also had the elegant Gaura Lindheimeri.

ORCHIDS.

ODONTOGLOSSUM ENCHANTRESS (Anzac × Colossus).—This very pleasing hybrid bore an arching spike of eleven large flowers of the well known amabile type, but with much broader segments than usually seen. The flowers are rose tinted, handsomely blotched with reddish purple, the labellum broadest at the apex, white, with prominent red-brown blotching on the central area, and a spiny crest of bright yellow colour. Award of merit. Shown by Mr. E. R. Ashton, Broadlands, Camden Park, Tunbridge Wells.

LÆLIO-CATTLEYA SENATOR VAR. TITANIC.—A very fine production resulting from the crossing of Lælio-Cattleya H. T. Pitt with Cattleya Tityus. The unusually large flower had the sepals and petals of rosy mauve colour, the latter effectively crisped on the apical margin, the expansive labellum, which was the chief organ of attraction, being of rich velvety crimson colour; while each of the lateral lobes bore a yellowish disc derived from Cattleya Warscewiczii, one of the parental species. Award of merit. Exhibited by Messrs. Black and Flory, Slough.

THE DAHLIA SHOW

THE National Dahlia Society is to be congratulated on the success of its Annual Show, which was held at the Royal Horticultural Hall, Westminster, on September 9th last.

The large trade collections of lovely blooms of all the different types presented a most attractive appearance and added greatly to the general effect. Some of these collections had been arranged for the previous day's meetings, but the exhibitors added some fresh blooms, while Mr. H. J. Jones, Mr. J. T. West, Mr. C. Turner, Messrs. Waterer, Sons and Crisp, Messrs. Jarman and Co., and Mr. J. W. Forsyth, brought entirely fresh blooms, greatly to the advantage of the Show. Gold medals were awarded to Mr. West and to Mr. Jones, while Messrs. J. Cheal and Sons received a large gold medal.

Although the formal show and fancy dahlias, which held the affections of our grandfathers, and some of our fathers, have long since ceased to retain their high place, the Dahlia Society rightly keeps a few classes for them, and we noted that more than a few visitors paused to admire their perfection of shape and colour value. Messrs. Wm. Treseder, Limited, seem to be the only trade growers of them and they staged twenty-four perfect blooms of W. Girdlestone, Pandora, Willie Garrett, Mrs. Chamberlain, Charleswood and other sorts. The best amateur exhibitors of these old-time dahlias were Mr. A. J. Barnes, Bedford, and Mr. H. Lagden, Shenfield, whose blooms, though a trifle smaller than Messrs. Treseders, were perfect in form and colouring.

It was interesting to note quite a revival in the dainty little pompon dahlias, which are really the show and fancy type in miniature. The season has been far from ideal for the production of perfect examples of these fascinating little flowers, but Mr. A. J. Barnes, Bedford; Mrs. Courage, Crawley; and Mr. A. E. Poore, in the various sections, had the best collections we have seen for a long time. Their varieties included Nerissa, Bacchus, Regulus, Darkest of All, Glow and Sunset.

For real value, both in the garden and as cut flowers, the miniature peony-flowered has nearly everything in its favour and we confidently anticipate that this is *the* dahlia of the future. The best varieties make compact plants of medium height that bear plenty of flowers of delightful colours over a long period. At the Show there was an almost bewildering variety for anyone to choose from. In the open classes Mr. A. J. Cobb showed St. Andrews, Mrs. W. Childs and Sweet, while in the amateurs' classes a first prize was won by Mr. M. Howard of Chesham, with six vivid blooms of Fuzee. We also noted, of this type, Hilda D. Wheeler, Sparklet, Helen, Sunset, Kenneth, Crimson Glow, Sunbird and Picture, while the miniature peony-flowered type was used in all the most pleasing decorative exhibits.

The newer cactus dahlias have been immensely improved in habit and now there are plenty to be had with stalks so long and stout that the blooms are carried well above the foliage, so that in addition to their charms as show flowers, they have a distinct garden value. Usually it is the varieties which have flowers made up of rolled and curled florets that find most favour with exhibitors and in addition to this charm of uncommon form they possess practically every desirable shade or combination of colouring.

In the competitive classes, most of the blooms were of varieties of the type above mentioned. In the open division Mr. H. Woolman won the first prize for six blooms each of twelve varieties, with a magnificent exhibit. His best sorts were Gloriosa, Alabaster, Sidney Jones, Ballet Girl and A. E. Amos. Mr. J. Stredwick and Son were second, but in the class for twenty-four blooms shown on boards the positions were reversed, and Messrs. Stredwick were first. They included Ruddy Glow, F. W. Fellowes, Southern Maid, Erica and Supreme.

Mr. W. J. Cramp, an amateur from Streatham, was first with twelve varieties and his excellent collection included Meridian, Virginia and Mammoth. He was also the champion exhibitor of cactus varieties in the amateurs' section, while Mr. A. Brown, Seagrave, had the best six varieties. In the class for twelve blooms in four varieties, shown on boards, Mr. A. F. Tofield of Southampton, had a beautiful collection. Mr. A. Brown was very successful in the classes for amateurs who do not employ any paid assistance.

Next in garden value to the miniature peony dahlias we should place the small decorative type, which should please those who like a touch of formality in their flowers, and these, also, were freely shown and of considerable beauty. Earl Beatty, Reigate Priory, won the first prize with very attractive blooms of Raider, Tipsy and Marriena in the open class, while Mr. M. Howard had the best in the amateurs' section.

The collarette dahlias found favour with a considerable number of the visitors, who were charmed with the quaint frills, often of a distinct colour, on the blooms. There seems a slight tendency to show varieties with these quills nearly as long as the ray florets, but the most attractive sorts were those in which the quills were not much more than half way across the florets. Messrs. Wm. Treseder, Limited, were awarded the first prizes in the open classes, but their varieties were unnamed and so the exhibits lost a deal of their value.

In the amateurs' section Mr. F. Gregory, Luton, won both first prizes with excellent collections of Eden, Admirable, Bonfire, Regularity and other good sorts.

The decorative classes were very popular and many quite artistic arrangements were seen, both in the dinner tables and the vases and bowls. Mrs. Courtney Page, Enfield, and Mrs. W. Yandell, Maidenhead, were the most successful lady exhibitors.

The new class, in which the Monro Challenge Cup was offered for the best floral designs to illustrate the decorative capabilities of the dahlia, brought only Messrs. Wm. Treseder, who were awarded the cup. They had a number of conventional arrangements, suitable for all occasions, from the cradle to the grave, which were well executed.

A large number of seedling dahlias were selected for trial at Wisley, but as these are purely provisional awards, we feel that no useful purpose would be served by recording them, especially as some of the names have been previously used and must be changed.

EDINBURGH SHOW

THE splendid display staged at Edinburgh on September 9th, 10th and 11th last, under the auspices of the Royal Caledonian Horticultural Society, was probably the largest and finest horticultural exhibition ever held in Edinburgh. Since the occasion of the last International Show marked progress has been made in all branches of horticulture, and the developments and the results of the last twenty years were clearly evident from the numerous exhibits put up at the Industrial Hall. It is a matter of difficulty and often of anxiety to find material to stage at an autumnal show, but in this, Scotland excels. The weather conditions of the few days previous to the Show were against the production of fine blooms, but the majority of the exhibitors are to be congratulated on their displays. Dahlias and gladioli took pride of place on the majority of stands where hardy herbaceous flowers were shown. The former were especially good, and with their variety of colour, size and form largely contributed to the excellent decorative effects of the tables. In the floricultural world, Scotland, to judge from the high standard reached by all exhibitors at the Show, retains her position, of which she may well be proud, and, although limited to a certain extent by climatic conditions, is still capable of producing flowers, vegetables and fruits which rank as some of the finest in the world.

Probably the most outstanding exhibit in the Show was that staged by the Parks Department of the Edinburgh Corporation, under the able charge of Mr. J. T. Jeffrey. Full use was made of the space at their disposal, and a novel bedding-out scheme—in which asters,

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celosias and begonias were the chief objects—was admirably carried out. In the centre of the beds two paved paths led up to a small pool and fountain. Tortuous paths ran down each side and, while, no doubt, enhancing the general appearance of the exhibit, seemed a trifle out of place if one has regard to the attention which must be given to such an arrangement in practice.

There were a few rock gardens also laid out in various corners of the hall. One of the most effective was that designed and carried out by Mr. Maxwell Hart of Glasgow. The central theme was a trickling stream ending in a small pool. The setting was a simple and a natural one, while the general design left nothing to be desired. Heaths and ferns, notably scolopendriums, predominated. The exhibit was undoubtedly a a lesson to the amateur as to what could be undertaken in a small space and also at little cost. Messrs. Laird and Dickson of Edinburgh employed many varieties of heaths in their rock garden, where a stream was again the principal feature. In addition to the garden, a well arranged and constructed rock bank was made, and contained many of the choice alpines, notably gentians. In Mr. David King's scheme shrubs predominated, and altogether the effect was a pleasing and attractive one. The small semi-formal water garden laid out by Messrs. Backhouse of York attracted considerable attention. Ornamental foliage shrubs were employed as a background to the more choice dwarf subjects planted on a walled bank.

In the general exhibits that of Messrs. Dobbie and Co., Edinburgh, probably attracted more attention than any other, and it fully deserved the large gold medal which was awarded to it. The general effect was excellent. The roses were all in fine condition, and all the leading varieties were included on the stand. Messrs. McGredy of Portadown again excelled with their collection of roses. All the varieties were in fine condition, and several novelties, such as Gwyneth Jones, were represented. Many firms took full opportunity of the space at their disposal and had a tasteful display of both flowers and vegetables. Messrs. Austin and McAslan of Glasgow staged a fine collection of vegetables, the appearance of which was considerably enhanced by the background of large-flowered gladioli, which were displayed in spray vases. In addition to this stand a fine collection of potatoes was also staged, together with a collection of alpines and rock garden subjects. Messrs. Daniels of Norwich followed much the same style of exhibit. A representative collection of vegetables was shown, also many of the leading varieties of apples and their new September Black Currant.

The few exhibits of vegetables were staged by Messrs. Sutton and Sons, Carter and Co., and Tillie White and Co. of Edinburgh. On Messrs. Sutton's stand tomatoes (red and yellow) predominated. All the vegetables were in good condition, and the method of arrangement left nothing to be desired.

The only exhibit of clematis was that arranged by Messrs. L. R. Russell, who staged a fine collection of plants in pots. The notable variety Crimson King was again in the forefront of the exhibit. There were numerous exhibits of herbaceous flowers, and the majority of these showed a wonderful selection in hardy border flowers, considering the late season. Messrs. Forbes of Hawick included some of their fine pentstemons on their stand. Arranged in the mass they looked exceedingly well. Mr. W. Wells, Messrs. Stuart and Pearson and Messrs. Baker's exhibits were of a general nature, as was that of Mr. John Downie of Edinburgh. Messrs. Rich and Co. showed phloxes, displayed, perhaps, not to the best advantage, in spray vases. Mr. T. Smith of Newry staged a fine exhibit of shrubs, including heaths and other hardy representatives of the border.

Mr. James Vert was again to the fore with a fine collection of hollyhocks; while Messrs. Blackmore and Langdon staged a fine array of double begonias which attracted considerable attention. Roses in spray vases were shown by Mr. Thomas Robinson of Nottingham, including all the better known sorts; while Delphinium Pedigree Seedling and large-flowered gladioli formed the exhibit of Messrs. Hewitts of Birmingham. A novel exhibit of miniature gardens in kerbs was arranged by Messrs. Thomas Milhorn and Sons, Edinburgh. There were many novel and extremely artistic designs suitably displayed in all sizes and shapes of bowls. Perennial scabious were in the capable hands of Messrs. Isaac House, who were also showing a brilliantly fiery coloured new tritoma named Mallenders Mount Etna, which appeared to be a valuable addition to the existing number. An exceedingly fine exhibit of chrysanthemums was staged by Messrs. Keith Luxford; all the flowers were of good size and form and were admirably displayed. Notable varieties were Elsenham White, Early Buttercup (yellow) and Red Almirante. Messrs. E. F. Fairbairn of Carlisle showed a collection of phloxes and also some excellent dahlias, the blooms of which were almost perfect in colour and size. A brilliant array of colour and bloom was produced by the stand so well arranged by Messrs. Thyne and Son of Dundee. Dahlias were prominent, and their new dwarf variety, Paisley Gem, of a pleasant shade of orange, was notable. This variety should prove a valuable adjunct in all bedding-out schemes. Messrs. Lowe and Gibson staged their excellent primulinus gladioli, the flowers of which were in excellent condition. Carnations were in the capable hands of Messrs. Allwoods and Messrs. C. Engelmann. The former made a special feature of their new Allwoodii in ample beds, while their stand was reserved for the perpetual flowering varieties. Messrs. C. Engelmann had a collection of perpetual carnations which gained the first prize in its class.

The exhibits of fruit reached a high standard of excellence, which was remarked upon on all sides. Mr. R. C. Notcutt of Woodbridge had a fine collection of apples, all the leading varieties being represented. Fruiting sprays of cotoneasters, berberis, pyrus and euonymus greatly enhanced the appearance and setting of the baskets of fruit. Messrs. Bunyard also staged some excellent apples in baskets. An interesting collection of grapes, grown in a greenhouse without heat, was also shown by this firm. Another well arranged exhibit was that of Messrs. Storrie and Storrie, Glencarse, consisting of fruit trees in pots and also baskets of apples, pears and plums. An interesting collection of old Scottish pears was shown by the Carse of Gowrie Nursery Company, in addition to an extensive display of apples, pears, plums and currants. These two latter exhibits served to show the high standard of quality and excellence which can be attained in fruit cultivation in Scotland.

In the amateurs' classes the entries were numerous—somewhere in the neighbourhood of 2,000—and the competition exceedingly keen, especially in the classes for grapes, where there were some exceptionally fine bunches shown. Mr. Don McKinnes, gardener to the Earl of Strathmore, was a successful competitor in these classes. In the vegetable classes the standard reached was very high and the judges were set no easy task. The classes for decorative effect were well patronised and produced some striking displays, while the floral classes attained a very high level of excellence.

LIST OF AWARDS.

Large Gold Medals: Messrs. Dobbie and Co., Edinburgh, roses, dahlias and sweet peas; Messrs. Sutton and Sons, vegetables; Edinburgh Corporation Parks Department.

Gold Medals: Messrs. Allwoods, carnations; Messrs. Austin and McAslan, gladioli and vegetables; Backhouse Nurseries, Limited, rock and formal garden; Messrs. Bunyard, hardy fruit; Messrs. Carter and Co., vegetables; Messrs. Dickson and Co., roses; Mr. Maxwell Hart, rock garden; Messrs. Isaac House, new perennial scabious; Messrs. Laird and Dickson, rockwork; Messrs. S. McGredy, roses; Mr. R. C. Notcutt, hardy fruit and berried shrubs; Messrs. Storrie and Storrie, pot fruit trees.

INTERESTING ANSWERS

I have been bothered with my asters going off after being planted out in beds and borders, so am sending you some for inspection. I wondered if it was due to a fungus disease or a deficiency of humus in the soil. I found a small transparent maggot just over an inch long at the root of one I inspected the other day, but that seems to lead me no nearer a solution of the difficulty. Most gardeners term it shanking, and bother no more about it, but I feel there must be a remedy and would feel grateful for advice. I may say they were grown in cold frames.—E. EKINS, *Bedford.*

Asters and several other kinds of plants, suddenly die, usually when they approach the flowering stage. The cause of death is a fungus, which reaches full power to destroy about the flowering time of the plants. Grubs generally come where there is decay. Dig the soil deeply this autumn, and scatter on its surface, afterwards, three pecks of lime per square rod. Leave it so throughout the winter, and next spring sterilise the soil with a formalin solution, one pound to twelve gallons of water. To the compost used for raising the seeds, add some old lime rubble.

A reader in Donegal asks why Sparaxis pulcherrima and Alstrœmeria aurantiaca fail in a well drained border, with limy soil, facing south.

The sparaxis should have some rough peat added to the general soil in which the plants are to be grown. Good loam and leaf soil should form the bulk of the compost. A warm, sheltered border is the best position, and not any, or very little, lime in it. It is well to raise the border, to plant about 4ins. deep at the end of September, and to protect from frost with dry litter. The alstrœmeria requires a well drained soil, quite 2ft. deep and a warm position. Plant 9ins. deep and 12ins. apart; mix half soil with that used for covering. Some old mortar rubble, mixed with the soil immediately over the drainage portion, will be beneficial in this case. Where heavy soils obtain, raise the border 9ins. or so.

I shall be greatly obliged if you will kindly give me a little advice on green manuring, also the most economical varieties of seeds to use.—V.

White mustard and vetches are the crops most generally raised at this season for digging or ploughing in while in full growth. The plants derive their chief constituent—carbon—from the air; they are shallow rooting and, furthermore, possess very small roots, so they do not exhaust the soil, but greatly enrich it when buried beneath the surface to decay. Seaweed, too, is a valuable manure of this character, where it can be obtained.

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THE GARDEN

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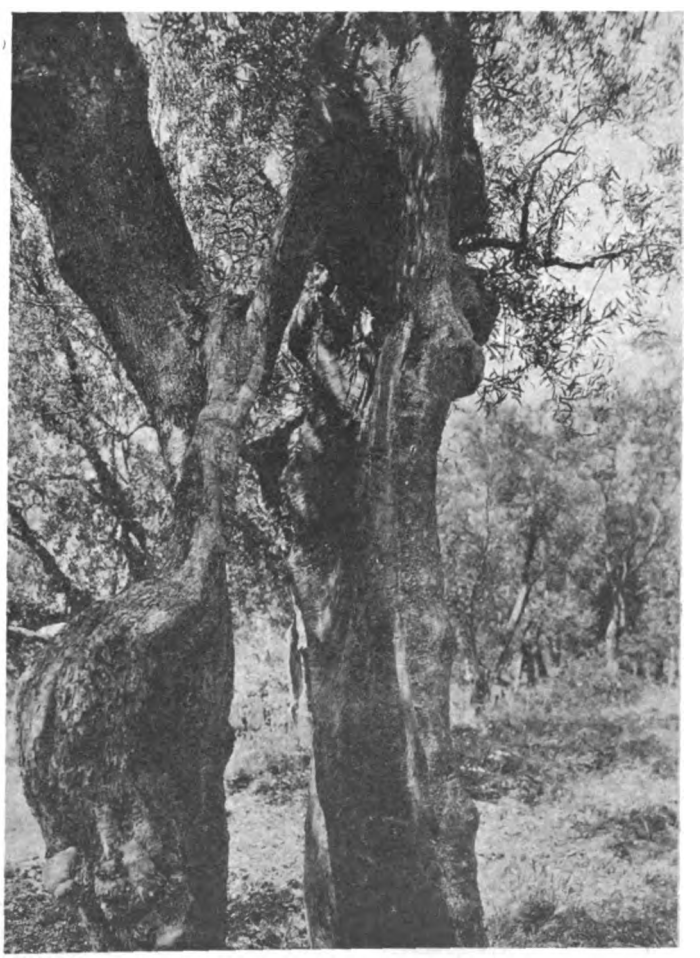
TREE SURGERY

TREES, as well as humans, are susceptible to physical injuries. Whereas, among men, the repair of the body by surgery has become a fine art, tree surgery, in this country at any rate, is in the same state as was human surgery in the dark ages, when limbs were lopped off and the stump seared by fire or covered with a coating of pitch.

In one or two countries tree surgery is practised. There is a firm in the United States which specialise in the healing of trees and who advertise that last year they did $1,500,000 worth of business. This may sound enormous to us, whose knowledge of this art, for it is an art, is rudimentary, but it must be remembered that the United States is a large country and that in many states fine timber is rare and so is jealously guarded and tenderly cared for. America, however, is not the only place where tree surgery is practised, for in Italy blains and boils in certain trees have been operated on for centuries. Those who have walked through groves of olives or have taken note of mulberries in the fields, will have seen the weird and picturesque contortions which surgery has given to many of the older trees. This is particularly the case in olives, which are often so cut away that it is a marvel how the narrow lath of wood remaining can bear such a noble crown. Trees are often seen completely cut down the middle, and yet year by year they bear a heavy crop. In the mulberry the knife is less often used, which is no doubt partly caused by the fact that mulberries are rarely allowed to exist for many years. There is a vital difference between tree surgery in the United States and in Italy. In the former it is used to preserve a beautiful object and so the surgery is as inconspicuous as possible, in the latter the preservation is entirely on economic and not on æsthetic principles.

In the British Isles we have so much fine timber that in the past there has been little necessity for the evolution of this branch of forestry. If a fine old tree is damaged and has to be removed, there is usually another close at hand to which we can transfer our affections. Our repair of damage is either non-existent or crude in the extreme. How often do we see the jagged remains of a branch which may have been broken by a gale years before with no attempt at arresting rot and decay? If anything has been done at all, it is only the sawing off of the jagged ends and an unsightly lick of tar on the open surface or an even more unsightly iron plate. Occasionally cement is used to fill up an ugly gap or hollow, but nothing is done to blind the cement. If a branch is dangerous, there are three remedies in this country: its amputation, with never a thought about the appearance of the tree, an ungainly prop underneath in the case of a lower branch, or a rusty iron chain to moor it to the upper structure of the tree. It is, perhaps, unnecessary here to go to such lengths as they do in America, but many a fine specimen could be saved if the trouble was checked in time. There is hardly a garden or a park which has not one tree which lords it over its neighbours and which



A TYPICAL OLIVE IN NORTH ITALY, WHICH HAS BEEN SURGICALLY TREATED SOLELY FOR ECONOMIC REASONS.

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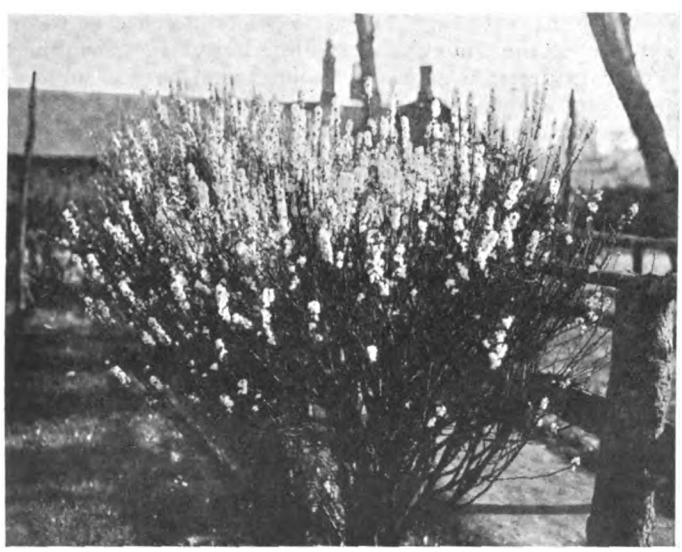
is pointed out with pride by its owner. It takes longer to grow a new lord than to destroy an old one, and in order to save these from the frailties of old age for as long as possible, we might well take a leaf from the book of the United States' tree surgeons and learn a little of what they have to teach us.

I believe I am right in stating that there is no one who practises tree surgery in this country. This is an art which is not so easy as might appear on the surface. It does not consist solely of covering up damage caused by snow or wind or in lopping off dangerous branches and covering the gash in as inconspicuous a manner as possible. There is much decay that takes place in an old tree that is never seen on the surface. This can be checked if taken in hand before it has gone too far. In many cases a diagnosis can be given and sometimes the cause removed. It must be remembered that few trees die of old age, and that disease will attack a tree as it will a human being.

The British Isles has been noted for its noble trees for so long that it is surely our duty to take every care of them. No place is so prolific in specimen trees that even a small percentage can be spared. From the letters which are received by *The Garden* and *Country Life* from time to time it would surely pay some firm to practice the valuable profession of tree surgery. E. H. M. C.

A WINTER GARDEN

THE title that heads this article does not indicate, as might be imagined, a miniature Crystal Palace housing a few palms and a band, but a special bit of ground devoted entirely or almost entirely to shrubs, plants and bulbs of which the flowering season extends from the end of November, when the last of the chrysanthemums is over, to the beginning of March, when the first daffodils open.



DAPHNE MEZEREUM IN A COTTAGE GARDEN.

HELLEBORUS NIGER IN THE WINTER GARDEN.

The exact way in which such a garden is laid out is a matter to be governed by the space available, the general contour of the ground and other considerations, which will, naturally, vary in each individual case; but it is imperative that it should be sheltered from cold winds and be open to the sun. If it slopes gently to the south or south-west so much the better, and if it is not entirely enclosed by walls there should be, if at all possible, one facing the sunniest quarter with a broad border in front of it. Backed by such a warm wall, Chimonanthus fragrans, the winter-flowering honeysuckles, Lonicera Standishii and L. fragrantissima (the latter, unfortunately, is a shy bloomer in some gardens); Cydonia japonica and its varieties; Hamamelis arborea, H. mollis and H. virginica; and Berberis stenophylla will all thrive well and bloom early, as will Garrya elliptica, the pretty pale green tassels of which are apt to get badly nipped by frost in an exposed situation. Garrya is, however, rather too strong a grower if space is limited, and the same objection applies in some measure to the forsythias and to Jasminum nudiflorum, although the long gold-starred shoots of the latter are certainly seen at their best against a sunny wall. But it is nearly as effective and takes up less room if grown on a pole or stout stakes. Azara microphylla is another shrub desirable in a winter garden for the sake of its pretty foliage, which is evergreen and weatherproof except in very cold localities.

In the border in front of the south wall may be planted Daphne Mezereum, white and red; Prunus nana, the dwarf almond, double and single; Erica carnea, E. darleyensis, E. mediterranea and E. m. hybrida, all of which will grow in ordinary loam and are less averse to lime than other members of the heath family, although they prefer a peaty soil. Between and slightly in front of these shrubby plants, some of the hellebores, H. fœtidus (valuable by reason of its handsome evergreen leaves), H. colchicum and its hybrids, and H. orientalis may find a place, together with clumps of Iris stylosa (unguicularis). This lovely winter-flowering iris is not always easy to establish and has a rather tiresome habit of flowering profusely one year and not at all the next. A warm, well drained border or bed of rather poor soil suits it best, but it is necessary to keep it well dressed with a mixture of coal ashes and soot or Sanitas powder from the time the flower-buds begin to form, as slugs are particularly partial to the flowers at all stages. In front of Iris stylosa, snowdrops and winter aconites should be thickly planted, and the border may be edged with one of the mossy saxifrages or a low-growing campanula such as C. cæspitosa or C. pusilla, the leaves of which make a neat green mass.

It is less easy to deal with the comparatively sunless parts of the garden—and however favourable its situation it is unlikely to be quite without them—but Helleborus niger, the popular Christmas rose, does not object to a certain amount of shade: indeed, it dislikes the morning sun, and as it must be protected by more or less unsightly hand-lights, it is as well not to give it too prominent a position. Sun is not absolutely essential to Petasites fragrans, if it is desired to grow this ugly thing for the sake of its early and very sweet-scented flowers, but wherever it is placed it should be planted in a large pot sunk so that the rim is just above the ground, as, unless this precaution is taken, this rampant coltsfoot will choke everything else within a radius of many yards. Omphalodes verna will produce a few of its brilliant blue blossoms in February,

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JASMINIUM NUDIFLORUM IN MID-WINTER.

even out of the full sun; and the glossy green leaves of the Vincas—blue, white, single and double—are pleasant to look upon even when without a flower—a rare event.

If the garden is very small it is wisest to avoid turf altogether, otherwise a charming effect can be achieved by laying down a lawn in the centre and planting in it good specimen trees of Prunus Pissardii, P. Miqueliana, P. cerasifera (the myrobalan plum), P. Amygdalus (the common almond), Cornus Mas (the cornelian cherry), whose pale yellow blossoms, individually insignificant, look beautiful seen against a blue sky; and, possibly, Jasminum nudiflorum, grown on poles as previously suggested. In the grass should be naturalised early-flowering crocuses such as C. lævigatus, C. vitellinus, C. Susianus, C. Imperati, C. Sieberi and C. chrysanthus, as well as the ordinary Dutch crocus. A lawn in a winter garden calls for particular care in draining, and if the soil is wet and heavy it is better to dispense with one altogether and to fill the space with slightly raised beds divided by brick or stone-paved paths. One of the flowering trees may be placed in the centre of each of the beds, and the latter can be filled with bulbs and carpeted with arabis (the single variety flowers earlier than the double), polyanthus or coloured primroses. The latter will often begin to flower late in January unless the weather is exceptionally severe, and both double and single should be grown in as many colours as possible. They will seed themselves freely, but care must be taken to root out promptly any seedling which shows any tendency to revert to the wild type or is muddy in colour. The beds may be edged with tiles or stones, or with clipped box or euonymus. The gold and silver varieties of the latter make a pretty bordering, but a sharp frost is apt to catch the tips of their leaves badly.

It will add to the amenities of the garden if some kind of a shelter, even if only a wooden seat—a teak one is best—with a lean-to or pent-house roof of reed thatch, can be placed at the best point for getting a comprehensive view of the plot. If it can be managed, the shelter should stand on a platform of bricks or paving-stones raised by a couple of shallow steps from the ground level. Against this platform may be built up a rock-bed with pockets in which should be planted Iris reticulata, I. Histrio, Narcissus minimus, N. minor and N. nana (the last two are rather expensive, unfortunately); early crocuses, chionodoxas, Anemone appenina and A. blanda. These two beautiful anemones, indeed, cannot be too freely used in a winter garden. They may be planted in masses in beds or borders and will increase rapidly in a fairly warm soil, especially if in a moderately sunny situation and given a yearly dressing of leaf-mould. Both anemones may be also naturalised in grass, but A. appenina is, perhaps, best suited for the purpose.

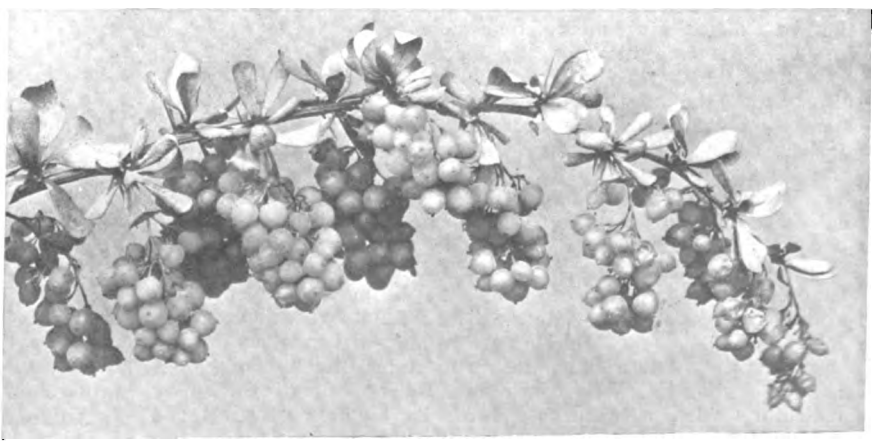
R. E. HEAD.

SOME CHINESE SHRUBS & TREES of our GARDENS

THE reason for the scarcity of many fine Chinese introductions is not only that they are not sufficiently known, but also the difficulties encountered in their propagation. Such plants as Acer griseum, Davidia involucrata, the newer Chinese magnolias and coniferæ, and a host of others, of which, comparatively speaking, there are but a limited number of plants in this country, few of which have yet set fertile seed and some possibly never will, at least in anything like commercial quantity, and which are of very difficult propagation by cuttings. It would, therefore, appear that until further seed is forthcoming from China, or existing specimens in this country set fertile seed, these plants will remain scarce, and almost unprocurable. It must, however, be remembered that while this is true of a certain class of plants, there is a far greater number of these Chinese species which are producing fertile seed and which are of easy or possible propagation from cuttings, layers, etc. The practice of grafting, as all know, should be avoided as far as possible.

Acer griseum and A. nikoense of the trifoliate class are, perhaps, two of the finest of this section, especially on account of the fine red and orange autumnal colourings of their leaves. Unfortunately, it is doubtful whether there is at present any source from which the former may be obtained, and the latter is only held in limited quantities by a few nurserymen. Seed obtained from Japan is frequently untrue to name and often of bad germinating quality. The typical form of A. nikoense has been found only in Japan; it is smaller and less pubescent than the variety from central China.

Of those with entire simple leaves A. Davidii stands first, with its distinct white striated bark. Of equally rare character is A. lævigatum, which is one of the most distinct of Wilson's acers, belonging to the section integrifolia. It is closely related to A. Fargesii, which differs by the smaller not reticulated leaves and also by the red colour of the inflorescence and young foliage. A. lævigatum has, with but little damage, passed several winters outside here at Winchester. It is one of the last species to lose its leaves at the fall of the



A WELL FRUITED BRANCH OF BERBERIS WILSONÆ.

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year; right up to that time they remain a bright green colour. When grown under glass it remains evergreen throughout the year. In foliage it differs from almost any other species, the leaves being simple, oblong or lanceolate, acuminate; the margins vary from being almost entire to finely serrated or crenulate and irregularly notched. The average length of leaf is about 4½ins. to 5ins., but here they have been measured up to 7ins. long by 2ins. wide. The young shoots are of a bright shiny green.

Many species of the genus betula of Chinese origin are now to be seen growing in some of the leading gardens of this country. In order that they may be considered of horticultural value they have first to displace our native Betula alba (the common silver birch), which is a most beautiful tree. There are several Chinese species which supersede the indigenous birch of this country in the beautiful silver and

CLEMATIS MONTANA RUBENS ON AN OLD STUMP

orange colouring of their bark. Such subjects as Betula Ermanni and B. albo-sinensis and their varieties are probably the finest of the silver-stemmed species.

There is a section of the birch family which may be termed the red-barked birches. These, as the name indicates, differ from the silver-barked species in the colour of their stems and branches being brownish red and sometimes even darker. Two of the best of this class are Betula Delavayi and its variety Forrestii.

Berberis and cotoneaster are two of the most richly enhanced of shrubs through Chinese introductions, and certainly two of the most easily grown. The variations in the habit of growth of the species of berberis are great. B. candidula (hypoleuca), B. verruculosa and B. Wilsonæ make splendid additions to our rock gardens. The first two bear evergreen foliage of the darkest glossy green hue with yellow flowers in the spring, followed in the autumn by bluish black, egg-shaped fruits. B. Wilsonæ, named in honour of the great collector's wife, is unsurpassed for its clusters of coral red fruits and fine autumn colourings assumed by its foliage. Of the large-leaved evergreen section the following are well worthy of being in every collection.

B. Sargentiana, a strong, bold grower with large leathery leaves bearing a prominent venation, and with conspicuous stiff ivory white spines. Differing from and yet somewhat similar to this species is B. atrocarpa. The habit of branching is more intertwined and the leaves are smaller and smooth on the underside.

B. Soulieana is of a stiff, rigid habit and differs from the previously mentioned species in its fruits being more round than egg-shaped, and its leaves narrower and more lance-like.

Of the deciduous species, B. dictyophylla is distinct, with its white branches and large solitary red fruits; while B. aggregata Pratti, when covered with its paniculate clusters of coral red fruits, which remain on until Christmas-time, is a charming shrub easily to be possessed by every gardener.

B. yunnanensis is of erect growth and has large, prominent spines. It may be seen at its best when at the fall of the year its foliage is brilliantly tinted in red and yellow shades.

B. polyantha is a tall grower, attaining 8ft. in height. The drooping inflorescences are about 3ins. to 4ins. long, carrying up to over fifty yellow blossoms, followed by drooping clusters of small red, egg-shaped fruits, hanging in a manner similar to that of a bunch of grapes.

The berberises, like the cotoneasters, are very suitable for mass planting in poor soils under trees where few subjects will grow and nothing else give such transforming effects.

The large mauve-flowered section of buddleias is the most handsome, the most easily propagated, and thus the most frequently seen. The type of this group usually known in gardens as B. variabilis is now correctly called B. Davidii. The best varieties are magnifica, Veitchiana and superba, and of the newer varieties the most noteworthy is nanhoensis. The species are less known in our gardens, and the large woolly-leaved section is of more difficult propagation. Of such are B. Farreri and B. nivea, both of which are clothed with a dense white tomentum. B. yunnanensis and B. Forresti are also worthy of a place in our gardens on account of the silvery hue of their foliage. Unfortunately, all these species fall short of the flowering qualities and hardiness of the old B. variabilis and its varieties, and there is no member of the family known to cultivation in which may be found combined the large silvery leaves of B. nivea with the large panicles of mauve flowers of B. Davidii.

One of the finest of the Chinese shrubs is Buddleia alternifolia, differing from other members of the genus in its small alternate leaves. During June it is a charming object with its long, slender, arching branches, wreathed from end to end with an unbroken band of lilac-coloured flowers. As the flowers are borne on the previous year's wood it is important that, if any pruning be necessary, it should be done immediately after flowering.

A beautiful species, at present but little known, is Buddleia Fallowiana, flowering at the same time as the Buddleia variabilis varieties, against which its long narrow panicles of pure white flowers form a pleasing contrast. The charm of B. Fallowiana is enriched by the fragrance of its flowers, which are closely packed into the form of a cylindrical spike, each individual flower bearing at the centre of its delicate white corolla a mark of orange yellow. The silvery white foliage, most apparent in the young growth, adds to the attractiveness of this new species.

Ceratostigma Willmottianum, a member of the Order Plumbaginaceæ, may best be described as a shrubby plumbago. This is a great acquisition to the autumn-flowering shrubs. When in full flower, the season of which is long, it well holds its own in the most glorified herbaceous border, and a truer blue it would be difficult to attain in any other plant. It is a shrub of very fair hardiness for the southern counties, revelling in the full sunshine and never attaining a height of more than about 4ft.

I have chosen three species of clematis. There are many others and probably of more recent introduction, but many of the latter have not yet proved their horticultural merit.

The value of the well known Clematis montana cannot be over-estimated, being not particular as to soil, of free, vigorous growth and very free in flowering. The variety rubens with its rose-coloured flowers is a particularly fine form and should be more frequently planted.

C. montana Wilsoni differs from the type in the flowers being strongly scented and later in opening, and is, on this

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account well worth growing. C. Armandii was introduced by Wilson in 1900. Its flowers are creamy white or white, rather smaller in size than those of C. montana. The outstanding feature and value of this plant is that it is another addition to our comparatively small number of evergreen climbers, possessing large trifoliate leaves of a dark glossy green colour.

The finest yellow-flowered clematis in cultivation is C. tangutica and its variety obtusiuscula. The flowers before they are fully expanded are like yellow lanterns scattered over the entire plant. A large specimen seen when in flower is a sight not easily to be forgotten. Individual flowers have been measured up to 4ins. across.

Shrubs flowering during July and August are valuable assets to our comparatively limited number of late summer flowering species.

Clethra Delavayi, flowering at this period of the year, may be considered one of the most magnificent of Chinese introductions, forming a shapely deciduous shrub of rather erect growth and producing creamy white, lily of the valley-like flowers in great profusion on long slender spikes.

Corylopsis is a generic representative of the same Order as the better known hamamelis or witch hazel. All the species are natives of north-eastern Asia and bear a common resemblance one to another. Corylopsis Willmottiæ is a deciduous shrub with hazel-like leaves and bearing drooping racemes of yellow flowers before the leaves appear in the spring. It ultimately attains a height of about 10ft., and will thrive quite well on chalk provided that it is given a fair depth of soil and placed in not too shady a position.

H. G. HILLIER.

(*To be continued.*)

TROPÆOLUMS AND BRODIÆAS

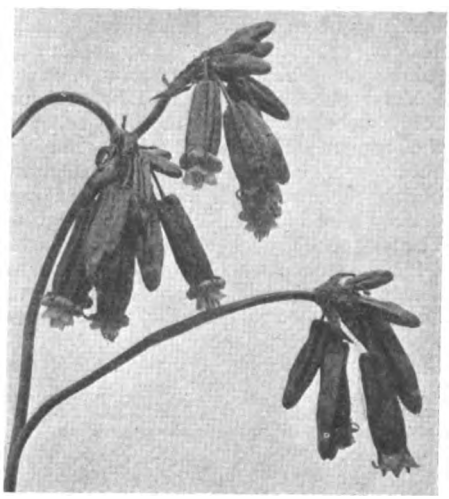
THERE is a saying that what a man does not know, he does not wish for, and certainly this saying has an element of truth when applied to many out of the way bulbs.

Let me select Tropæolum speciosum, the flame nasturtium as an example. This species is fairly well known, but how many gardeners have grown its relative, Tropæolum tricolorum? A short description may assist in giving some idea of the plant. If this subject is included in this year's bulb order, in due course you will receive one or more—depending on the confidence the writer may inspire—round or oblong brownish tubers. From one of the ends two or three thin thread-like green shoots may have sprung, which should be handled with all care, as if these are broken there will probably be no visible part of the plant outside the ground, although the tuber under the ground will remain intact.

These tubers should be potted up at once, three in an 8in. pot. They should be laid flat on the soil and covered to a depth of 1½ins. If the young shoots have developed, however, it is advisable to keep them on the soil level. A suitable compost is one consisting of equal parts of sand and leaf-mould, with an addition of loam.

The plants are best grown in a temperature not falling below 40° F. in winter, either in frames or in a cold house. The pots must be watered carefully, giving more water when the young shoots appear and are in an active state of growth, which is mostly in the course of a few weeks after the potting up. Three or four sticks 2ft. long inserted at equal distances round the rim of the pot and united at the ends with one or two cross-bands will give the stems ample support. In March or April all will be covered with small greenish five or six-partite leaves and soon after the flowers will appear on long pedicels. These are most attractive, scarlet in colour, tipped with black, and for several weeks the plants will be in full beauty. At the end of April or the beginning of May the plants show signs of withering, and water should be withheld gradually, allowing the tubers to dry off entirely. The whole pot with tubers and soil may be stored away in a warm, dry place,

VARIOUS SPECIES OF BRODIÆAS.



THE CALIFORNIAN FIRE CRACKER.

and in July or August the tubers may be re-potted. T. tricolorum is a native of Chili, from where it was introduced in 1828. Propagation is carried out by seeds, which will produce flowering plants in two or three years.

Another good plant, even less known, is T. brachyceras. This forms somewhat more robust plants, and is therefore very useful as a decorative subject for covering the stiles of a greenhouse in winter and spring. The flowers are golden yellow and do not possess such long spurs as those of the preceding species. Treatment is the same for both.

T. pentaphyllum flowers later (May–July) and may be grown in the open during the summer months. It bears a good many flowers. The outside may be a bright scarlet when fully exposed to the sun's rays, or a duller red when grown in a greenhouse. The interior is pale green with small purplish spots. A good plan is to pot it up early in the year and bring it to its summer position after hardening off.

T. tuberosum is not so satisfactory, as its blooms generally appear late in the autumn and are often destroyed by early frosts. A warm, sunny spot

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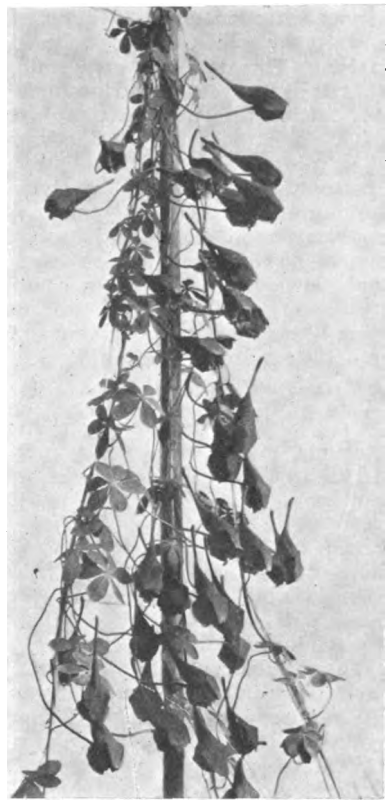
is therefore beneficial. The plant, like the others, is of a climbing nature and requires support. It will grow up to 6ft. or 7ft. The yellow and red flowers are rather large. Many of the first season's tubers which are produced by this species are edible, and it is said that these were used for culinary purposes by the Incas of South America, the plant being a native of Peru.

Another genus of bulbous plants which deserves more attention is Brodiæa, the members of which are natives of the western parts of North America, but still tolerably hardy. They all like a warm corner in a well drained, sandy soil, and should be planted late in autumn, covered with 2ins. to 3ins. of soil and from 4ins. to 5ins. apart. Small colonies from twenty-five to fifty plants will give the best effect.

One of the prettiest, but at the same time more tender than the others, is Brodiæa coccinea, the Californian Fire Cracker. This throws up a stem of 1½ft. to 2ft. in height, at the top of which eight to twelve pendulous, tubular flowers are arranged. The colour is shining deep red and edged with green.

Very closely allied are BB. capitata, congesta and multiflora. All have at the top of the stems, which may be about 2ft., crowded heads with many bluish flowers. BB. capitata and congesta, violet-blue; multiflora, mauvy blue. The latter grows somewhat dwarfer. Of BB. capitata and congesta there are forms known with white flowers—offered as var. alba—and generally among seedlings some whites may be found with a lilac flush. If necessary to name it may be distinguished as B. congesta lilacina.



TROPÆOLUM TRICOLORUM.

B. lactea (californica alba) forms an umbel with pretty white flowers, each petal banded with green. B. lactea lilacina is faintly lilac tinged and usually grows 6–8ins. higher, the flower-stems attaining a height of 2½ft.

Very large umbels are formed by BB. Bridgesii, grandiflora, laxa and peduncularis. One of the most decorative is B. laxa with 1½ft. stems and about twenty to forty large purple blue flowers. The umbel may measure up to 8ins. across. B. laxa maxima flowers about a week earlier, and an interesting albino form is B. laxa alba. B. Bridgesii is on the same lines, but with this species the flowers are pinky mauve, although individual plants vary somewhat in colour. B. penducularis is better known, with very large umbels of white and porcelain blue flowers. B. grandiflora, grows very dwarf, with umbels composed of deep blue flowers.

A comparatively rare plant is B. minor. In this species the scape nearly rests on the leaves, which, unlike the others, lie on the ground. The small flowers are pale blue with a deep blue band. This species should have a special position, as close inspection is wanted and the plant has neither stems nor gorgeous flowers to draw attention.

BB. Hendersoni and ixioides splendens (Calliprora lutea) both have on top an umbel with yellow flowers, B. Hendersoni pale yellow, B. ixioides splendens deep golden yellow.

B. volubilis I have not grown so far. It should be an interesting plant, making twisting stems which in nature are supported by herbs or grasses, having an umbel of rose-coloured flowers. It is deplorable that Californian growers or collectors rarely offer a thing new to our gardens. Could a Californian garden friend oblige me with some B. volubilis, or californica, Douglasi, rosea and others not mentioned here? TH. HOOG, JUN.

NOTES OF THE WEEK

PLANTS ON AMBLESIDE.

IT has been my good fortune to spend a fortnight in the very heart of the Lake District. Ambleside was selected as a fit place to spend a short holiday. To the casual observer the English Lakes are always an attractive centre, but to the botanist and plant-lover they offer a land of infinite joy and pleasure. A well known place on Langdales is Steelwith Fold, situated in North Lancashire. My first introduction was to a remarkably fine specimen of Eucryphia pinnatifolia, a plant of magnificent proportions not far short of 30ft. in height and 15ft. through. What is more, it was in perfect health and full of flower-buds. This particular plant has been in its present position for over twenty years. It has received no protection except that afforded by the surrounding trees. There is also a magnificent plant of Notospartium Carmicheliæ. This was a wonderful sight some 20ft. high, covered at the top with what at a distance looked like a wistaria. It was covered with pink or rather mauve-coloured flowers, a perfect picture, and worth a day's journey. A curious plant attracted my attention, namely, a pseudopanax, probably P. lineare, a plant like an aralia, which I had seen before in the Temperate House at Kew. It was interesting to know that it had been growing out in the gardens here for twenty years. Mr. Charles Eley in his book, "Gardening for the Twentieth Century," tells us of his doubts whether the Chusen palm could be rightly included in a list of evergreen shrubs suitable for English gardens. Here at Steelwith Fold, situated among the hills, this lovely palm has found a suitable home. There is a colony of six beautiful specimens, the largest plant being 6ft. high, the smallest over 4ft. They have been in their present position for twenty years. I consider that this palm is quite hardy. One I planted near Southport twenty-five years ago is now in a flourishing condition and produces male flowers, if they may be called by such a name. It stands at present some 12ft. high and is never protected even during the coldest weather. Species of azaleas and rhododendrons assume immense proportions at Steelwith Fold such as one never dreams about in the South. Rare forest trees, interesting evergreen and flowering shrubs all find a good home.—M. H. STENSFIELD, *Southport*.

ROSE GOLDEN EMBLEM.

IT is doubtful if many of the horticultural enthusiasts who attended the splendid exhibition at Shrewsbury made their way to the dell garden in the famous Quarry grounds where the show was held, for the wealth of the exhibits would occupy their time, but they missed a wonderful sight. Here was to be found some splendid beds of roses, the most conspicuous being a large bed of Golden Emblem. Surely there was never anything seen before in such excellence. Tall bushes from 4ft. to 5ft. high were the picture of ruddy health, the foliage as large as holly leaves and the trusses of bloom wondrous to behold. I was informed by Mr. Ward, the able gardener, that when this dell garden was formed quantities of blue clay were used in the making of the beds, supplemented with some good loam. All the fertiliser the plants had received this year was an application of bone-meal. So many rose growers fail with this glorious rose, as they find it dies back in winter, especially after pruning. These plants had been hard pruned, but there was no sign of dead wood. Some of the growths made this year were as thick as a stout walking-stick, and they carried huge bunches of buds and blossoms. I thought it might interest rose-lovers to know of this bed and, incidentally, to encourage those who have failed with Golden Emblem. Evidently the blue clay had worked wonders, and it was a proof that good preparation of the beds before planting well repays anyone.—WALTER EASLEA, *Leigh-on-Sea*.

THALICTRUM DIPTEROCARPUM.

ONE of the obvious plants that should be more frequently grown than it is at present is Thalictrum dipterocarpum. Many nurserymen stock it and it is often seen at flower shows, and yet for some reason or another its popularity has hung fire, and for no conceivable reason. This fine Chinese species was introduced by Mr. E. H. Wilson through Messrs. Veitch a number of years ago, and it is safe to say that no gardener who once grows it will ever be without it again. The flowers of T. dipterocarpum and all the other thalictrums, or meadow rues, have no petals. In their place they have four or

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five petal-like sepals of a lovely lilac shade tinged with rose. It has been known to reach 8ft. in length, but the normal is about 6ft. The foliage is fine and rather scanty for so large a plant, but the abundance of flower more than makes up for lack of foliage.

There is also a lovely pearly white form called album, but this is rather rare. Farrer always wrote of this plant as being of doubtful hardness, and other writers have followed his lead, which perhaps accounts for its lack of popularity. On the other hand, most gardeners that I have spoken to about it and who know it well are sure of its hardiness, and this is borne out by an American correspondent who wrote of it in THE GARDEN, May 31st, 1924: "It might be of interest to know that this species is perfectly hardy in northern New Jersey, where the temperature has touched zero on several occasions since I planted it three years ago. I have it planted on a north border in medium loam, and give it no protection beyond what other perennials receive, that is, a few old pea boughs, and a little litter."

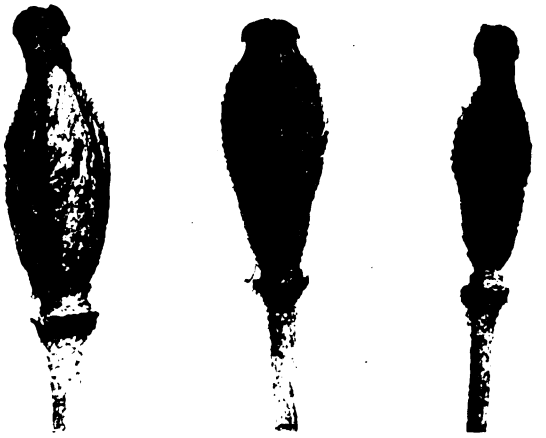
This correspondent grows it in a border, but the best place to see it at its best advantage is the wild garden, where its nodding grace is particularly attractive in July. They are also effective by the waterside. They like a rich loam and sufficient drainage. One reason for their effectiveness by the waterside or in the water garden is that in such positions they do not have to be staked. Their tall stems sway and swing so gracefully that to stake them is the most artificial of gestures.—R. H.

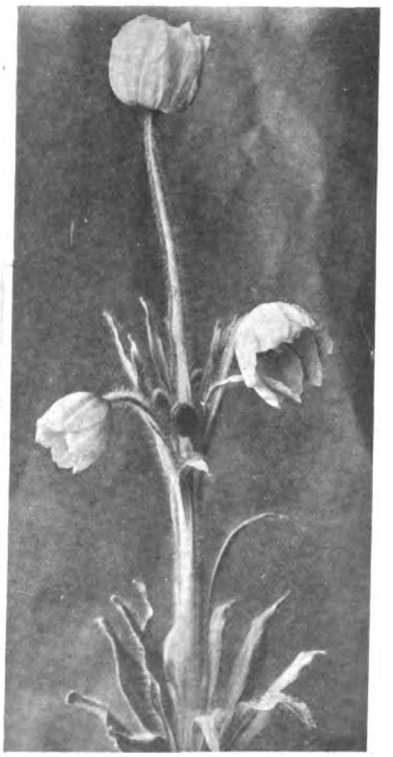
SOME GOOD PLANTS FOR BANKS.

IT is sometimes found to be a difficult matter to select suitable plants for covering dry banks and others that are under the drip from tall-growing and overhanging trees. The double-flowered gorse is a splendid plant for furnishing dry banks in the southern counties. The variety nanus is compact-growing and very dwarf. Gorse plants do not like being disturbed at the roots, but they may be severely cut back when necessary and a dense growth of young shoots will soon appear. The ivies are not grown for bank covering as generally as they deserve. I refer to the large, ornamental-leaved sorts which are pretty on banks near a dwelling house; these, too, may be freely trimmed in due time. The St. John's wort (hypericum), is a splendid plant for covering banks which are in partial shade or under the drip of trees, the variety calycinum, commonly called Rose of Sharon, is the best for this purpose; its flowers, too, are lovely. The variety oblongifolium is a very strong grower and bears very large flowers at the end of summer. I think the best plant for both dry and wet banks, in dense and partial shade, is the periwinkle—vinca. For clothing small banks the variety minor is the best and major the best for big banks. These plants will grow in almost pure sand, and also in a stiff soil; their blue flowers are very charming. Then there are the barberries, those of a spreading or pendulous habit, they should be planted near the top of the bank. For all it is best to form small pockets at first.—G. G.

MECONOPSIS INTEGRIFOLIA.

THE accompanying illustrations show three forms of Meconopsis integrifolia growing in my garden in Perthshire. No. 1 is Meconopsis integrifolia, the flowers of which in a well grown plant measure from 7ins. to 8ins. in diameter, and I have had as many as thirty-eight flowers on one plant. This species comes into flower during the month of April and continues for about two months. This is followed by another variety of integrifolia, which I grow under the name of M. brevistyla. The flowers of these two varieties are very much alike, but there is quite a distinct difference in the foliage, that of M. integrifolia being very silvery, whereas in M. brevistyla it is a brown colour. M. brevistyla comes into flower fully a month later than integrifolia. There is also a difference in the seed capsules, the stigma in integrifolia being much longer than brevistylla. Both of these varieties set a large quantity of seed, which germinates very quickly. The third variety of integrifolia, as can be seen in the illustration, has much smaller flowers. These are much more cup shaped and a slightly deeper yellow colour. This variety flowers at the same time as M. brevistyla, in the middle of May. The seed capsule is not so large as the other two varieties, and I seldom get more than half a dozen seeds from a capsule, some of them containing no seed.—A. HARLEY.





Large Flower. Large Flower. Brevistyla. Small Flower. Small Flower.

VARIOUS FORMS OF MECONOPSIS INTEGRIFOLIA.

FLEAS IN THE ROCK GARDEN.

A FEW weeks ago I was greatly puzzled, and not a little worried by the appearance of four or five plants of Iberidella (Thlaspi rotundifolium), which had, up till then, been growing up nicely on my rock garden. I had planted them out on a tract of limestone scree, where at first they grew well and made good tufts of their characteristic, fat, fleshy leaves; and then something went wrong. The leaves became pitted all over with mysterious little nibblings—not around their edges as any honest caterpillar would gnaw them, but all over their surfaces with evenly peppered little pock marks. For some time I was completely mystified, and could not imagine what was attacking the plants. Not only was it very disfiguring, but it was discouraging. My prosperous plants, which I had expected would smother themselves under pats of lilac honey-scented blossom, became shabby, mangy, unhealthy—growth came to a standstill and it looked as if Iberidella would die. Then, by chance, I discovered the cause. I thought I would gently prod among the scree chips, on the off-chance of turning up some unknown grub or other lurking malefactor, and as I put out my hand to prod, a flea jumped off Iberidella, then another, and another, and another; four or five fleas jumped, in all directions, swift and far—and were gone. I know they were fleas. I have read descriptions of them. But they were not real pukka fleas, such as we have all, I suppose, at one time or another—read of. They were those tiny flea-like beetles known as turnip flea or fly, of which, apparently, there are several species. The turnip flea is well known to kitchen gardeners. He will wipe out whole rows of turnips in the seedling stage, and he attacks the homely Shepherd's Purse and other of the cruciferæ. But that an exclusive little alpine of the upper screes should be infested seemed somehow all wrong. And such a tidy, clean looking little plant too. This adventure with the turnip flea has aroused my interest, and I

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have been reading up the literature of fleas generally. I find that although fleas and turnip fleas resemble one another superficially, with their glossy bodies and their skill in leaping, they are not really related. Yet there is another trait which they have in common, for whereas I find that the turnip flea has the impudence to forsake his common or garden turnips and attack my expensive high alpines, Bartholomew writing somewhere about 1535 says, "The Flea . . . desireth blood, and doth let them that would sleep with sharp biting, and spareth not Kings, but a little Flea grieveth them, if he touch their flesh."

But the idea of this note is not to show that fleas in Shakespeare's time were as catholic in their tastes as are turnip fleas to-day, but to warn rock gardeners of the danger of turnip fleas among their choice cruciferous alpines, and to tell them how they may get over the difficulty. I am not one to suffer fleas gladly—turnip or otherwise. I do not take them lying down—so to speak. My Iberidellas had come to look like slum poppies, and something had to be done. I bethought me. Then I sent up into the village for a fly paper. This I cut into strips of a few inches, which I spread out neatly all round the Iberidellas, weighted at the corners with pebbles. It worked perfectly. The merry little fleas jumped. They jumped on to the fly papers, and they jumped and were merry no more. Within ten days or so Thlaspi rotundifolium was making a rapid recovery and pushing out a crop of fresh and healthy leaves.

I think it more than likely that other choice small crucifers of the rock garden may be attacked by the turnip flea. In fact, I seem to remember seeing plants of Morisia Hypogæa, with perfectly good roots dwindle away in what I now suspect was a flea-bitten decline.—CLARENCE ELLIOTT, *Stevenage*

THE SEASON FOR EVERLASTING FLOWERS

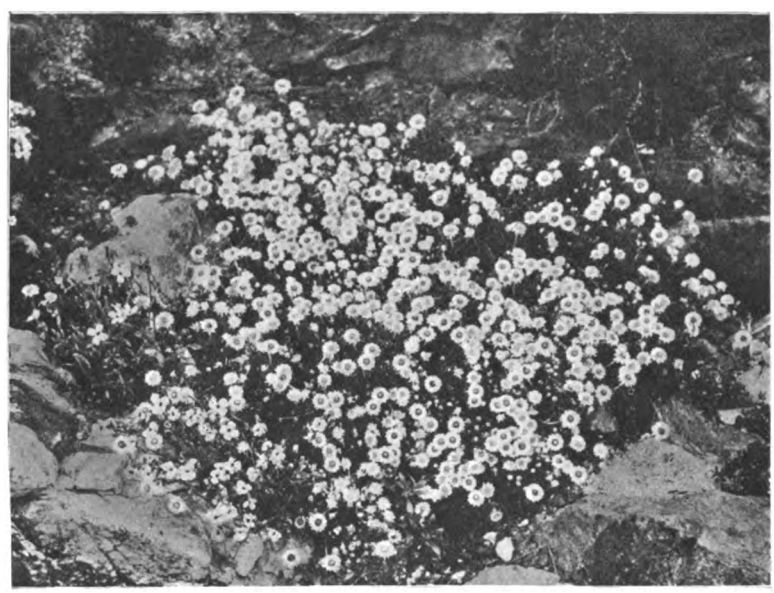
DURING the summer, with its wealth of blossoms in the garden, many overlook the plants that contribute not only to an outdoor display, but have a value for the decoration of the home in winter. It is always a matter for surprise, to me, that so many garden lovers, who have no greenhouse, should attach such little importance to subjects, that after the garden has been bereft of flowers, add interest and pleasure in the embellishment of our rooms. Rarely, indeed, does one find any serious attempt made in growing a representative collection of "everlasting" blossoms, and one wonders, sometimes, whether it is generally known that nearly all the plants are hardy and when once planted will go for years without requiring any special attention. The season for cutting the flowers is here, and these should be placed in vases, without water, the foliage being removed as it shrivels. In Echinops (globe thistles) and eryngiums (sea hollies), we have an assortment of blooms from glistening white to various shades of steely blues. Echinops ritro, with dense blue heads is, perhaps, the best known of the thistles. The stems should be cut before the spiny balls expand, otherwise they do not last long. E. niveus has silvery, globular flower heads and is one of the tallest of the group. E. sphærocephalus bears whitish flowers, and the leaves are silvery.

The sea hollies are a pretty family, hardly so stiff and formal as the thistles. They are ornamental both in the garden and when the bracts are cut for home adornment. E. planum produces in a season quantities of small blue flower heads. E. amethystinum, as its name denotes, yields heads of that colour and the stems likewise, making it a handsome plant. E. alpinum is considered to be the finest of the group, with steel blue heads, devoid of spines. A very attractive one is to be found in E. tripartitum, a very dark blue species, and effective for decoration.

Physalises are perennials prized for the calyces of orange and crimson which are at their best in September. Familiarly known as winter cherries and Chinese lanterns, they add warm colour indoors. P. Alkekengi (orange) and P. Franchetii (orange red), are popular sorts. Statice incana (rosy purple) and S. latifolia (blue), provide spreading heads of coral-like flowers. Gypsophila paniculata, in both the single and double forms, when once established, give us huge panicles of white flowers that last in a good state when cut well on into winter.

One biennial at least serves us well in a collection of "everlasting" flowers. It is highly thought of by many, and lunaria, known to thousands as honesty, gives a quaintness to a room among old furniture. A perennial worthy of mention, but seldom seen to-day, is the blue cupidone—catananche. It loves a dry, sunny position.

Annuals serve our purpose, too; we have them in helichrysums, acrocliniums, and rhodanthes, bearing blossoms of the daisy order, and sprays of statice in colours of white and rose and yellow and mauve. A few sprigs of lavender will provide fragrance in a bunch of "everlastings" which remains long after the flowers have lost their colour. Lightness in a vase of blossoms can be ensured if only some of the fragile looking grasses are introduced, such as agrostis, nebulosa, Briza maxima (quaking grass), Eragrostis elegans and Stipa pennata. Add to these a few sprigs of heather with leaves of bracken when autumn has set its colour seal upon them, and one may have something of interest in the home long after the last of the outdoor flowers have departed.—CLAREMONT.



A GOOD EVERLASTING FLOWER, HELICHRYSUM BELLIDIOIDES.

A ROOM ORNAMENT.

A VERY pretty way of growing date stones is on the following lines: Secure a large sponge and as many date stones as can be obtained. Put the date stones into a jar and cover them with water—rain-water is best. Let the stones soak for the best part of a week. Then loop string round the sponge in such a way that it can be suspended. Soak the sponge well, and then into the openings pop as many of the date stones as can be accommodated. It is well to thrust the stones well down into the interior of the sponge. The sponge can now be hung up in a living-room, and the only thing to do is to keep it moist. It is not long before the date stones begin to sprout. As is well known, the first leaf of the young date palm is a graceful blade of a very intense green colour. Before long the sponge is a mass of the most beautiful greenery. The date seedlings seem to be able to live for months on the store of nutriment in the seed, always providing the sponge is never allowed to become dry.—S. LEONARD BASTIN.

BLUE BORDERS.

LARGE patches of the purple-blue catmint, Nepeta Mussini, are always effective. These regular and opposite clumps of two year old plants, with their numerous stems, are now smothered in bloom. No doubt one year old plants add a little to the floral effect of a border, but in the second and succeeding years the plants are (annually) wreathed in bloom. We usually insert cuttings every year about the end of July, so that young plants will be available to set out in October or early in November, in positions along the front of each herbaceous border.

Cynoglossum Blue Gem is one of the hound's-tongues, and is a graceful and floriferous biennial and worthy of a place in the best borders. It is really well named, as its numerous and dainty flowers give a choice shade of blue. Each June we sow seed on the open border, and in autumn the young plants are transferred to positions set apart for them at the front of the borders. Although some of the stems, when the plants are well grown, reach a height of 3ft. when in flower, they do not look out of place at the front of the borders, as the primal stems are furnished from the base upwards with neat cauline leaves each 2½ins. to 3½ins. long, then in the axil of each leaf is situated a slender shoot, near, and at the end of which the dainty blue blooms are borne. On some of the tall and more robust-growing stems, about twenty flowering shoots may be found, while each plant sends up several stems, ranging in height from 12ins. to 36ins.

The tall and stately Siberian, Iris sibirica, has still many fine and fully developed flowers and numbers of flower buds still to open. It is now between fifteen and sixteen months since one very large matted plant of this iris was torn asunder and the sections set out, several inches apart, to form groups or small colonies on the borders; yet, three months after that drastic treatment, nine plants—out of eighteen in one colony—flowered.

Anchusa italica Dropmore var., standing farther back on the borders, has made a fine display for about three weeks, and will go on flowering for a considerable time yet. Aconitums and delphiniums have opened a few flowers on their stately stems, and these, with the lavender plants, will continue to give shades of blue and purple tones throughout July.—DAVID ARMSTRONG.

TULIP NOVELTIES IN HOLLAND

THE surface of Holland needs no such things as mountains, nor need her chemist shops be filled with Kruschen Salts, so long as she has her tulip fields. A visit to them in company of King Sol has very nearly the same effect on one's spirits as Brindle's famous lemonade at the temperance garden party had on some of its most sanctimonious guests. Her tulip cups are the true "cups that cheer, but not inebriate," and her tulip beds are "bigger by far than the great bed at Ware." Tens of thousands of tulips may lie there and "never feel one another." I drank from those cups and made one more in those beds when the great International Show at Heemstede was literally dying in a blaze of glory—only a week or ten days more of life. I was just in time. The big stocks in the bulb fields had been beheaded, but the lives of the new seedlings had been spared, and I saw them at Haarlem, and Heemstede, and at Sassenheim. What impressed me most, you ask? In a general way, nothing more than the advent of the Mendels and the multitude of late-flowering whites that are all ready to be grown into "stocks." In an individual way, the exceeding beauty of a mass of the lovely rose-pink parrot Fantasy, the refinement of the old Darwin Bleu Aimable as grown in one of those monster glasshouses which are getting all the rage among the growers, and the singular charm of a lovely new white which I was privileged to name White Duchess. This is one of the many that we may admire, but which we must not expect to see in commerce for some little time. If I remember right, there were not more than six or eight bulbs all told, so even if it increases with the rapidity of a Lucifer or a Clara Butt, it must be years before we see it catalogued in our English bulb-dealers' lists. Another of the newest of the new is a very rich, deep yellow named after the late President of the Bulb Growers' Association, J. H. Wentholt. It has yellow pollen and is a grand "laster." It is of medium height. The early bird gets the worm. Mr. Tubergen honours some of his visitors by offering to name one of his seedlings after them, and he gives them the choice of which it is to be. Monsieur Henri Correvon was there the day before me. Well! he supplanted me. He bagged the most beautiful unnamed red in the collection. So what otherwise would have been Joseph Jacob is Henri Correvon. I call it a glorified Scarlet Emperor. All the same, I am very pleased with my pick, which is, likewise, a glorified edition of a very lovely variety, Brightness.

Mongolia and Mme. de Buyssens are two immense pale yellows. The wholesale price of the first named ran into pounds last year, but the figure was as nothing compared with the twenty pounds which the lucky owner got for the first bulb he sold of a fine scarlet named Perseus. Are we in for a big-price era? As far as I can make out, no such prices have ruled either in Holland or in England since the early years of last century, when the famous Fanny Kemble fetched £100, and Louis XVI was listed in Dutch catalogues at £25 apiece. Refulgence is a magnificent big red and Marjorie Bowen a top-hole orange-rose.

I do not expect any of these will be offered for sale this year. As far as I know not one of them is in any of the Dutch wholesale lists for 1925. There are, however, many beautiful novelties that are. Some, now to be mentioned, I hope will figure in our English retail lists this autumn. My two favourites are the pale yellow Arethusa and the bright red Brightness. I have not only seen these growing in Holland, I have had them in my own garden. I can recommend them with every confidence. Arethusa has jumped up very considerably in price from 1924. This is about as good an award of merit as a plant can have. It means that gardeners want it. When Brightness is better known I expect it will have a similar jump.

Alemene is a plant of medium height with a long-shaped rosy-red flower. It received an award of merit in London in May, 1920. I found Rosabella in every one's mouth in Holland, but I was disappointed when I saw it growing. Not so, however, when I got home. My man raved about it, just as they did in Holland. I hurried to see it and then I knew. All I had hitherto seen were Rosabellas on their last legs. In their prime the long rosy-pink petals, with their blush edges, make goodly flowers. I fell down and worshipped at the shrine. I was a fortunate man this year. I hit the late tulips off to a T in Holland. I found mine in quite good condition when I got home. Thus I was able to check my Dutch impressions in several cases. This was especially useful with regard to the whites. I have a few of all the varieties in commerce. Zwanenburg and Carrara are the two best. The first-named is a tall grower, with white flowers of true Darwin shape and black pollen, while Carrara is a dwarfer plant with balloon-shaped blooms and pale pollen. Just as in real life skim milk sometimes masquerades as cream, in catalogues cream masquerades as white. If only the stately Vesta were as pure a white as Zwanenburg and Carrara, they would have a serious rival, but there's that "if." It is striking how orange more or less enters into the colour of many new flowers. It may be no more than a thin wash over the whole, as in the brilliant Darwin Orange Perfection, or it may play a first fiddle part in others, as in Dido, which is a happy combination of rose and orange, or in Ambrosia, which I describe in my notebook as a paler and softer toned Dido, or in Dulcinea, where, however, the rose or cerise predominates. In Aegia it is the same. There is more real rose than orange. The particular charm of this last-named lies in the incurving of its three outer petals, quite in the style of the well known Darwin Euterpe. Just now I seem to have a "rose" wave in my brain, so when I was note-taking, down went the rosy ones, perhaps more often than they should do. The last four are cottage varieties, but it is the same with the Darwins. My notebook records the following as those which caught my eye: Turner (a deep shade), Chant de Cygne (late, soft colouring), Jupiter (not the mauve and violet breeder), Pamela (pale), and Aphrodite. Among the mauve and purple Darwins, Mr. Hoover (pale), Burgomaster Sandberg (deep red-violet), and President Harding (with a prominent pale margin to the petals), are those I noted. In Alaska we have a pretty light looking flower, with rather narrow upright petals—sweet scented and of medium height—of the same delightful colouring as the lemon and primrose mid-season Canary Queen.

Just as what is one person's meat is another person's poison, so in the floral world, what is old to one is very likely new to another. Otherwise how can one account for a dealer's list describing as "new," or a novelty, a variety we seem to remember ever since we were born. It's only a question of relativity after all. So, as a very fascinating little red-toned orange tulip named Marginata which I saw at Sassenheim, was new to me, I include it among my tulip novelties. I call it a jolly little chap. The sort of thing in humans would be described as "always merry and bright." Coupled with this in colour and age there is the breeder or unbroken form of Cherbourg. The broken or striped form used to be one of my garden treasures in prehistoric times, but never until my recent visit to Holland had I seen it as it was when it first started life. It was something to feast one's eyes upon. My old favourites, Prince Albert and Goudvink (Goldfinch), are no longer the "two kings of Brentford on one throne," the throne must be enlarged, for there are now three kings. "And the greatest of these is Cherbourg." There is only one thing against it. It is very expensive, but it thoroughly deserves the first class certificate it was awarded at Haarlem in 1920.

Another "old 'un" nearly related in colour to the three kings, and which I find is gaining favour in the bulb fields, is Garibaldi. A tall, pale biscuit brown, which might almost be described as a Bronze Queen in her more youthful and slimmer days. Every dog has its day. It was Lucifer's day in the rectory garden at Whitewell this year. Never before has it done itself such justice. The catalogues I have consulted agree in calling it an "orange red." This is much too matter of fact for such a grand flower, perhaps some of the "curious" will buy a few and add the necessary garnish for themselves. Lucifer is no novelty, and I do not remember seeing it in Holland. However, necessity knows no law and as I want a good ending, let Lucifer supply the peroration.

JOSEPH JACOB.

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CORRESPONDENCE

RHODOSTACHYS PITCAIRNIÆFOLIA.

SIR,—Last year a few correspondents wrote in THE GARDEN referring to the blossoming of Rhodostachys pitcairniæfolia. I shall be interested to know if those same plants are flowering again this year. Of the two plants growing in these gardens, for a number of years, one blossomed for the first time last year. But now both plants are throwing out their bright shining red bracts, and their inflorescences, made up of pale blue tubes and yellow stamens, are fast unfolding.—F. W. RICH, *Elfordleigh, Plympton.*

COLOUR NOMENCLATURE.

SIR,—I think your leader on Colour Nomenclature very timely and very interesting. If a committee of experts met, discussed the matter, and came to a unanimous decision on the various points raised, it would be a very helpful one to multitudes of gardeners and lovers of beautiful flowers and gardens. Very rarely do we find, in the flowers, the various colours given to them in catalogues—I may instance chrysanthemums—except in the case of some of the self colours. One cannot blame those who frame catalogues and describe their goods in them according to their own ideas of colours, but I feel sure that nurserymen would welcome assistance—guidance—in this direction. A subdivision and definite names, as you, sir, suggest, would help considerably, and if those responsible for compiling catalogues followed a lead, it would simplify matters considerably when amateurs are engaged in planting their flower borders and arranging for colour schemes in them.—G. G.

SIR,—I was very interested in your article on Colour Nomenclature in THE GARDEN for September 12th. In the trade, I know, it provides a very big "bone of contention." There are some flowers the colour of which scarcely two persons will agree upon. For instance, take Potentilla Miss Willmott. One big firm describes it as "of a vivid carmine," another informs its customers that it is "of a very delightful rich pink colour"! while yet a third catalogues it as "a charming clear rosy pink" (whatever that means!).

But I fail to see how hyphenated names can be abolished, and for this reason: various plants have flowers which are a combination of colours; the first that I can think of to illustrate my meaning is Viola Mrs. Morrison. This flower represents a conglomeration of at least three shades, *viz.*, ruby, white, and a very dark shade approaching black. The trio tend to make, to my mind, a very beautiful and striking combination, but is it possible, do you think, to produce one word that will accurately describe this blending of colours? There are, of course, countless other plants that would present no less difficult a problem. —J. BIRKENTALL.

SHRUBS IN ARGYLLSHIRE.

SIR,—It is always most instructive to us all to read Sir Herbert Maxwell's interesting letters in your paper, on what can be grown (and is not) in the gardens of the west coast of Scotland, but perhaps he may be a little pessimistic about them, as I know of several, besides the places he mentions, where many good and rare shrubs are cultivated; in fact, most of the Argyllshire gardens have something of more than passing interest in them.

We grow almost every rhododendron, both Himalayan and Chinese, that is worth cultivating. The show of R. Aucklandi, R. Roylei, R. argenteum, R. decorum, etc., this year was gorgeous, but the best of all were R. kewense, which here is far superior to R. Loderi or Loder's White (flowers 4–5ins. across), and R. oreotrephes; the latter Professor Bayley-Balfour considered more attractive than the type, and I have many seedlings of it. The hybrids, R. Gill's Triumph, Beauty of Tremough, etc., were splendid, and *to-day* (September 5th) there is in the woods a Pink Pearl in full flower, also a R. Keysi. Many of the other plants such as Sir Herbert mentions are in full vigour, as also is Cesalpina.

Veronica hedges of all colours are most effective and seed themselves very freely. I have had great success with Eccremocarpus scaber on old buttresses.

Our greatest bugbear is Pernettya, which in our light soil runs all over the place and cannot be checked; that and Spiræa Douglasii are perfect pests. Olearia macrodonta makes a fine hedge, but clipping spoils the flowering for the next year.

In a cold house R. Nuttalli is magnificent, and R. Boothi made a good show this year. Philesia buxifolia has flowered well, and Lapageria rosea is just coming into flower on a north wall. Last year this was most effective in November with the snow on it.—AUSTIN MACKENZIE, *Carradale, Argyllshire.*

THE VALUE OF CLEMATIS.

SIR,—How many people there are—in urban dwellings, at least—who allow "flowerless" ivy and creepers to cover their walls, who might, for a slight expenditure on a few clematis plants, have their walls bedecked with violet, mauve, purple, lilac, crimson and white loveliness for the greater part of the flowering season!

By counting the dead flower-heads as I cut them off, I have kept a record this year of the flowers produced by three plants which I have festooning a garden border. To date, there have been 1,472 flowers, and the plants are still covered with bloom. The three plants referred to were chosen for the test, not because they were more prolific bloomers than others, but because their isolated position made it easier to keep the record. Others, on the house wall and elsewhere in my small garden, have flowered equally abundantly.

In case any of your readers are interested to know the names, the three plants are C. Jackmanii (originally C. Blue Gem, but the graft died down), C. Gipsy Queen (Jackmanii) and Ville de Lyon. The latter has not done so well this year as last, when there was an abundance of bloom, many of the flowers being far finer specimens, both as regards size and colour, than any I saw at the principal shows. The other plants that have done well this year are Mrs. George Jackman and Mrs. Spencer Castle. And Nellie Moser, which, for some reason (perhaps because, like the first three named, it is in an unsuitable position, being in the herb border and subject to much disturbance at the roots), has not hitherto bloomed in the five years during which I have had it, has rewarded my patience this year at last. It has made such vigorous growth that I am justified in hoping that next year it will do as well as any of its fellows.

I hope this letter will influence those of your readers who have not yet introduced the clematis to their garden to do so now. There is no climbing plant better worth while, for few there are that flower for so long a period. And the choice of variety is far wider than my short list shows.—H. R. CURNIN, *Wimbledon.*

ANDROSACES—II

ANDROSACE LANUGINOSA comes from the Himalayas, and is a fine, easy-to-grow species for the rock garden. It is especially suitable for a warm, sunny slope on sandy, well drained soil It is one of the earliest of its family, and throughout the summer it continues to make trailing masses of shining silver, due to the silky white hairs that clothe its leaves, from the reddish trailing growth, abundant heads of pinky-lilac blossoms appear and, usually, a succession is kept up until late summer. Then we have its dainty white variety, quite as charming in every detail, with the same silken leaves and the same amiable habits, but with white flowers, the central eye of which is a greenish yellow and eventually fades to a warm rose colour. Cuttings of these two androsaces may be successfully and readily rooted in sharp sand, when the shoots are young and soft.

ANDROSACE CARNEA is very well known to the alpine enthusiast, and is certainly not very difficult to grow, but with this widely distributed species and its numerous varieties, leaf-mould should be the predominant ingredient in the compost, together with loam and sand. I find that an aspect moderately cool is also more beneficial than one that is hot and dry. It forms tufts of sturdy, deep, vivid green leaves, long and narrow, situated so closely as to present a mossy appearance; its flowers are borne on 2in. stems in the form of an umbel and are of a pleasant rosy-pink shade, with yellow eye. Confined to the Pyrenees, is its delightful variety Laggeri, which is a smaller and denser version. There is also a white variety, alba, which is very sturdy and a good doer, although not too good a white, as may be anticipated. A. carnea var. Halleri is exceptionally good, of robust habit with stiff, erect flower stems, carrying large, very pale pink blossoms, and makes dense tufts of bright green leaves. All the members of this section have hairless glossy leaves, which is a distinct advantage as regards their hardiness in winter. They are satisfactorily propagated by means of seeds and cuttings.

ANDROSACE TIBETICA has a certain reputation, which does not make it a favourite, but nevertheless it is a handsome species and with me it yields readily to cultivation in sandy peat, and the present year one plant, 3ins. across, provided ten noble flower spikes 4ins. high, each with crowded heads of sumptuous lilac blossoms. Its leaves are thick and solid and form lax rosettes, showing short intervals of a deep red stem. Characteristic of this plant are the bracts that sit on the flower spikes, which are on the large side.

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ANDROSACE CHARPENTIERI.—Of the rarer species, this is one, with small oval leaves bunched together in rosettes at the tip of short, slender stems, the whole plant making a low, rather loose mat. It bears its pink flowers on tiny stalks a quarter to half an inch high, in May. Fine hairs cover the leaves, but are hardly noticeable, except on close inspection, and simply give the plant a smooth, green appearance. A westerly aspect should suit it, in a scree mixture, with an additional sprinkling of chips round the collar,. to run away any surplus water that would be likely to interfere with its well being. Similar in style and habit to this species is—

ANDROSACE WULFENIANA, found on non-calcareous formations in the Eastern Alps. It is a neat and compact, low-growing treasure, forming tufts of small narrow pointed leaves, from which develop the large bright pink flowers. Deep scree treatment is advisable, in which abundant granite or slate chippings are present, in a pocket more or less protected from the hottest sun of the day.

ANDROSACE GERANIIFOLIA is unique, being altogether different from any other in cultivation, but worthy of being grown if procurable. It is a recent introduction from Thibet and is, of course, rare at present, but proves to be easily increased. The leaves are roundish, on leaf stalks 2ins. or 3ins. long, covered with fine, silky hairs, and in general resemble very much those of ordinary bedding geraniums on a small scale, being approximately an inch or so in diameter. It continues flowering all summer, in a most unusual way, making strawberry-like runners 6ins. in length, terminating in an umbel of bright pink flowers. As the flowers die, new leaves arise from the centre of the umbel and form a new tuft, which will, without hesitation, commence to make roots if touching soil. These flower shoots are very plentiful during the season, so that numerous new plants may be had with very little attention. It is of the easiest to cultivate, requiring a simple mixture of loam, leaf-mould and a dash of sand, in a cool, moist position, which may possibly be available at or near the foot of the rock garden on the west side. Also, for a similar aspect in the wall garden it thrives wonderfully well.

LILAC BLOSSOMS OF ANDROSACE TIBETICA.

ANDROSACE PULCHELLA.—As its name suggests, it is certainly pretty, with a light and fairy-like habit, hailing as a new species from China. Leaf-mould and sand are apparently what the plant enjoys, as it is perfectly happy in such. From the old rosettes of tiny glossy green leaves it throws out numerous other rosettes on deep crimson inch stalks, which remind one of Saxifraga brunæfolia, only instead of being long and threadlike, as in the latter instance, they are sturdier and shorter. Its flowers are borne in heads on 1in. stems, in May, and are a cheerful cherry-red colour. Propagation of the species may be successfully effected by taking away the baby rosettes on their short stems and inserting in silver sand in a cold frame, immediately they are available.

ANDROSACE SEMPERVIVOIDES somewhat resembles A. sarmentosa, to which group it belongs, having large, handsome rosettes of distinct leathern leaves, almost hairless, except on their margins, long and oval in shape, tipped with an abrupt small point. The main rosettes throw out several red and glabrous stolons, a couple of inches in length, which eventually end in a new rosette. Its blossoms are bright pink, in heads on short stalks. It is a Himalayan species and likes a moderately cool position, in sandy, vegetable soil. If the runners be pegged down they will readily take root.

ANDROSACE CHAMÆJASME has a wide distribution, occuring in stony calcareous soil and in turf. It runs about freely in ordinary gritty soil, new growths come to the surface from underground stems, and has more or less a straggling habit. The leaves are long, narrow and pointed and combine to form a rosette ; they are slightly hairy, particularly so on the underside, and on the leaf margins they are most conspicuous. Small umbels carry several flowers, white or creamy-white, fading to blush pink as they age, centre eye yellow fading to deep rose.

ANDROSACE OBTUSIFOLIA is very similar in every respect to the preceding species.

ANDROSACE VILLOSA is a charming species from the European Alps, and is easily accommodated in the rock garden, in a sunny, well drained position, in limestone scree or moraine. It makes compact tufts of neat rosettes, enveloped in fine silken hairs of silver. On 2in. stems, heads of solid white flowers are borne in May. It is an extremely satisfactory and pleasing item. A. arachnoidea resembles it very closely, but A. a. superba has a noticeable distinction, in its large and pure white blossoms, almost stemless.

ANDROSACE HEDRÆANTHA is a Balkan species, with long, sharp-pointed leaves of a sturdy and fleshy type, perfectly hairless, of a shining bright green colour. Short stems carry its flowers, which are deep purplish pink. Not knowing its cultural details, I submitted it to a limestone scree mixture, in which it was quite happy. Apparently it enjoys a good deal of moisture throughout the summer, so that the real moraine should be the plant's ideal.

ANDROSACE VITALIANA is also known as aretia and Douglasia vitaliana, and it is quite an easy plant to grow; but, as far as I have seen it is rather shy in blooming in cultivation, although its foliage is so neat and charming that, for that reason alone, it is worth growing. However, the flowers it yields are quite a good change from all others I happen to know, being a bright yellow colour. It makes tufted, short growth, with a distinct silvery margin of short hairs on the leaves. Leaf-mould and sand, in a cool position, suit it well, and although it grows chiefly on non-calcareous ground, it seems to have no particular dislike to a limestone scree. It makes a good subject for a deep crevice and also a wall, where it will make a neat and compact mat. F. BARKER.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and on the Cultivation of Plants.

ROMAN HYACINTHS.

THE value of the Roman hyacinth as a winter-flowering plant cannot be over-estimated. With the simplest of cultivation it gives its welcome bloom during the dullest days of winter when flowers are particularly scarce. There is no other subject capable of taking its place, my experience of the prepared Dutch hyacinths being that they are at least two months later in flowering. Without a greenhouse or any artificial heat the Roman's delicate and graceful, pure white, sweetly scented flowers may be had by Christmas or earlier. I have had bowls of Romans started in September in bloom as early as mid-November. My method is first to pour an inch or so of water in each bowl, then throw in the fibre to within an inch of the top of the bowl, pressing the bulbs in firmly and finishing off with a little more fibre, leaving the crown of the bulbs just above the surface. Usually no further watering is required until the bulbs are coming into flower; the moisture at the bottom of the bowls soon induces root action and I have not found it necessary to place in the dark. In the moderate temperature of an ordinary living-room the bulbs quickly make growth, and other bowls kept at first in a *cold* room and brought into warmer quarters later provide a succession of flowers lasting two months or more.—P. W.

ERIGERON QUAKERESS.

PERHAPS it is hardly necessary to draw the attention of hardy plant lovers to this erigeron, yet there may be many who have not grown this very beautiful fleabane. If one has only a little of the plant, it should be lifted in the autumn—especially if an increase of stock is required—and the whole separated into single pieces, care being taken to have roots attached to each piece. These should be placed in pots according to the size found most suitable, and then set in a cold frame. By this method one can soon get up a good stock of plants. This year, in the middle of May, we set out several plants, which had been grown for some time in 6in. pots; they were splendidly rooted and in a healthy condition. Two months later they commenced to flower, and kept up a fine display for about a month; and, situated as they were among Giant Perfection ten-week stocks (white), the "very pale lavender pink" flowers, borne on the 2ft. graceful yet strong stems, of this erigeron gave a most pleasing picture of beauty in the corner beds of our flower garden.

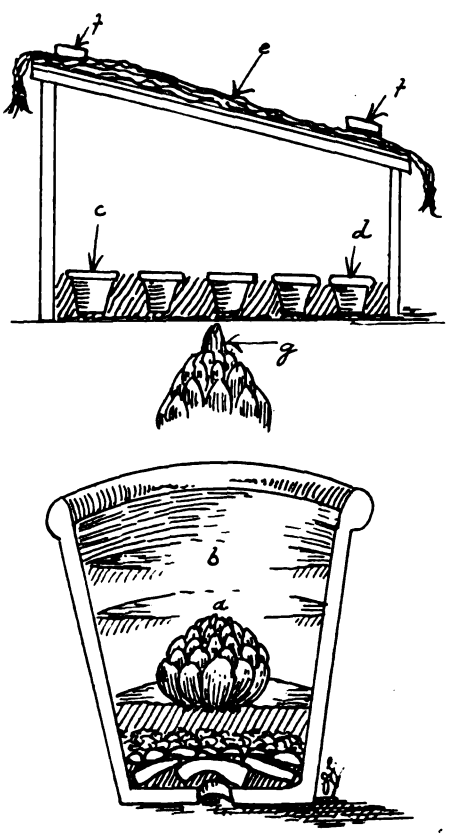
Monarda didyma is a much older and better known plant than Erigeron Quakeress, yet its scarlet flowers add greatly to the picturesqueness of a hardy plant border in the early autumnal days. But, to obtain good results, the plants should be grown in fair-sized clumps in fairly rich soil and in a sunny position. Apart from the usual methods of propagation—*e.g.*, by seed and division of the roots—this bergamot can easily be increased by cuttings.—DAVID ARMSTRONG, *Midlothian*.

GRAPES AND PEACHES AFTER FRUITING.

I AM sure that many readers of THE GARDEN who are fruit growers have suffered from peach tree buds dropping in spring just when they are looking forward to having sheets of blossom and, eventually, highly coloured fruits, or, in the case of grape vines, to still better crops in the future. Both kinds of fruit trees require rest during the winter months and also a border consistently moist. To ensure a nice moist condition of the border soil the drainage must be perfect. Blocked or otherwise imperfectly drained borders should be attended to during the autumn months. There is no more suitable time for such work to be done. If the drainage is satisfactory, the border soil should be watered at such intervals as will ensure it being kept nicely moist right down to the drainage material. Too often the borders and the trees are neglected after the fruits are gathered. A check is given to the flow of sap, after the period of rest the sap moves again and the buds, already loosened on the twigs, do not benefit, they drop off. Plenty of air must be admitted to the trees and their shoots duly thinned where necessary and tied in at a minimum distance apart of 4ins. If the soil is lacking in lime, add the latter in the form of a surface mulch. In numerous cases pot plants are grown in vineries, and, while they require a little heat, the vines need rest. Frost will not harm the rods under glass, and if they can be kept as cool as possible and quite dry till February or early March, the buds will grow kindly and strongly. Do not peel the rods, only remove loose bark. Finally, prune them late in December.—GEO. GARNER.

POTTING LILIUM HARRISSI FOR FORCING.

ALL tall-growing lilies are stately and the pure white-flowered ones are exceedingly chaste in appearance and always appreciated when forced. Whether three bulbs or three hundred are potted with a view to forcing early growth, the same treatment is necessary. Liliums will not thrive in a badly-drained border nor in a flower pot when the drainage is defective. Maiden loam, fibrous, cut and heaped for about six months form an ideal



compost if some well rotted manure and a little sweet leaf-soil be added. The bulbs should not be exposed to the air very long—only a few hours at most. When received from the bulb merchant do not remove them from the packing material and lay them on a dry shelf, but have the potting compost ready for use, also clean, dry pots and crocks. Very carefully examine each bulb and remove any decaying scales found, before potting, as one rotting scale may cause the whole bulb to decay. For understanding the details of potting we may look at the sketches. On the crocks there is a layer of rough compost, the bulb being placed on this as shown. At *a*, some sand is laid, covering lightly the crown of the bulb. Later, more compost is added, shown at *b*. According to the size of the pot the bulb suitable may be used, the largest to the smallest, as *c* to *d*. The covering mat *e* is kept in position by wood blocks, *f*, *f*. The pots may be placed in a bed of ashes, but not covered; the new flower stem, *g*, should be watched from time to time. Remove the mats when growth is free. Do not attempt forcing before the pots are filled with roots.—G. G.

FRUIT TREES IN POTS.

IN many gardens where greenhouses exist accommodation could easily be found for a number of fruit trees in pots, and for the majority very little fire heat would be required. Now is a good time to select the trees, and it is possible to secure varieties characterised by their reliable cropping, and good flavour, while our leading nurserymen can supply excellent specimens suitable for pots.

Peaches and nectarines are, perhaps, more largely grown in pots than any other fruit, and a grand pot variety for early work is Hale's Early, while Duchess of Cornwall is also a fine early kind. Other suitable varieties include Stirling Castle, Early York, Dr. Hogg, and Dymond. Among nectarines will be found Cardinal, Early Rivers, Lord Napier and Victoria. During recent years plums have been grown more freely in pots under glass, where it is possible to protect the fruit until it is fully ripe for dessert purposes. The gages are first rate, and such kinds as Jefferson, Allgrove's Superb, Kirke's and Coe's Golden Drop, are all reliable. Cherries are ideal for pots, neither do they require much root space. A few good varieties embrace the Duke section, Early Rivers, Emperor Francis and Noble.

Pears are not grown in pots to any great extent, and if apples are included in the list, only the choice varieties ought to be grown. Trees, two or three years old, are the best, and whenever possible they should be purchased already established in their receptacles. If not, they can be placed in pots 10ins. or 12ins. in diameter, and then plunged in ashes to the rims. Moderate drainage is needed, over which is arranged a piece of turfy loam to secure a free outlet for water. A medium heavy loam forms a suitable rooting medium to which is added a liberal sprinkling of old mortar rubble put through a half inch mesh sieve. Make the soil firm about the roots. No trees ought to be forced until they are well established in the pots.

ROSES ON THEIR OWN ROOTS.

WE are so accustomed to the rose being budded on the briar, that probably few give a thought to roses on their own roots. Probably the weaker growing varieties require the support of the briar roots, but there

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are others that thrive equally as well without their assistance, and, moreover, we are not troubled with suckers which often take the lead in an amateur's rose border.

The rambler section is admirably adapted to this method, and the cuttings readily form roots about this period of the year. American Pillar, Excelsa, etc., thrive immensely, and push up annually a number of stout, healthy shoots. Another rose is Paul's Scarlet Climber, of which we have raised some hundreds from cuttings. In addition to covering poles, it makes a useful bedding rose on its own roots, the young growths being pegged down early in the spring and most of the old wood removed. It is also excellent as a pot plant. Nearly all kinds of hybrid perpetuals root freely in the open, while the teas are best accommodated in a frame or hand light. The climbing varieties of Caroline Testout, Richmond, etc., are all doing well on their own roots, and this remark also applies to the single varieties of which the Irish Elegance class may be cited as an example.

Cuttings are made from wood that is getting firm, and not too sappy, such as the lower portion of a shoot which has flowered. The cuttings should be about 6ins. or 8ins. in length, the lower leaves are cut off, and shoots ought to be planted firmly 4ins. deep. A partially shaded border is chosen, and if the soil is on the heavy side, a liberal sprinkling of sharp sand will be necessary. A distance of 1ft. is allowed between the lines, and half that space in the row of cuttings. Here they will remain till next autumn, when they can be transferred to their permanent quarters.—T. W. BRISCOE, *Chepstow.*

WINTERING SPECIMEN LAWN PLANTS.

SPECIMEN plants increase in size every year, and room must be found for them during the winter, as, obviously, they cannot be left outside. But where glasshouse room is limited, the largest of some kinds can be wintered without its aid.

Scores of plants are used as dot plants in borders over low-growing subjects. The majority of these are retained in pots, the latter being buried to their rims in the border soil. Now, these plants are more easily dealt with than others that have to be lifted and potted, but, all the same, to enable them to overcome the check, it is the better plan to place them on the north side of a wall for two weeks prior to transferring them to the greenhouse. Fuchsias, heliotrope and similar subjects need this treatment, and fine-foliaged plants a little shading from bright sunshine for ten days. Keep the greenhouse rather close for the same time, then ventilate freely on fine days. Zonal and ivy-leaved pelargoniums must be wintered under glass; but after due preparation fuchsias, hydrangeas, sweet-scented verbena and similar plants may be stored safely in outside sheds if the pots are well packed in dry litter.—G. G.

THE ODD CORNER.

I THINK we all find odd corners in our gardens; sometimes they are passed by quickly because they are not interesting. But why are they not interesting? Because the little trouble to make them so has not been taken. The present is a suitable time to attend to such corners. Many lovers of gardens like special kinds of flowers, bulbous or fibrous-rooted; some prefer uncommon common flowers, and some hybrid berried fruits. In all cases it should be decided at an early date to tackle the odd corner. It may be that plenty of weeds abound there; if so, uproot them and destroy them by fire, also all foreign surface matter. If the soil is well permeated by the roots of coarse weeds, it should be deeply trenched and the roots got rid of. To sweeten and improve the soil add lime to it, leaving the whole in a lumpy state for a short time. A single loganberry plant will soon fill up any such odd corner. If open to the sun, not unduly overshadowed by the branches of tall-growing trees, the corner may prove to be an ideal one for a garden frame, and, certainly, such corners are often very suitable for nursery beds wherein to raise violas, wallflowers, polyanthus, primroses, hardy primulas, giant-flowered daisies, arabis and similar spring-flowering plants, so that the neglected bit of ground will soon become a source of pleasure and profit too.

BULBOUS PLANTS SUITABLE FOR THE ROCK GARDEN.

IN this group will be found a large number of beautiful plants that should find a home in every rock garden, and when planted in pockets or among some of the low-growing subjects they afford much interest and pleasure at a period when flowers are none too plentiful.

The daffodils of the smaller flowering or miniature varieties are excellent, and in no position do they look better than when growing through a carpet of some creeping rock plant. Narcissus cyclamineus, N. minimus and N. triandrus can be recommended. Chionodoxa Luciliæ is a charming plant, growing about 6ins. high, with deep blue flowers shading to white in the centre. A bold clump is most effective in early spring, and other forms of chionodoxa are also worthy of consideration. For giving a touch of brilliance Anemone fulgens should be chosen; its vivid scarlet flowers appear in April, with occasional blooms at other seasons. A large mass is a fine sight. It enjoys a partially shaded spot, where the soil is good and rather moist.

Good varieties of the wood anemone (A. nemorosa) are suitable, also A. baldensis and A. apennina.

The dwarf kinds of iris are almost indispensable for the rock garden, and the violet-scented I. reticulata with its dark blue flowers is one of the best. I. gracilipes, I. cristata and other dwarf forms are all suitable for the rock garden where the soil is light and the position not heavily shaded.

Tulips are well known, but there are a few choice species well adapted to our purposes, such as T. Greigi (orange scarlet), T. Kaufmanniana (white, orange and red) and Eichleri (scarlet). Snowdrops and scillas in variety, and, for autumn flowering, the bright golden yellow Sternbergia lutea, should be planted; also Colchicum autumnale, ixias and sparaxis can be obtained in striking and beautiful colours, and will prove a notable success if planted in masses at the back part of the rock garden. Crocus, erythronium, allium, Fritillaria Meleagris and Muscari ought to be represented, either on the rock garden or in the immediate neighbourhood.—T. W. B., *Chepstow.*

FORCED FRUIT IN THE EIGHTEENTH CENTURY.

THIS year our peach and nectarine trees have borne splendid crops of richly coloured fruits, and it may be worth while mentioning that a garden in the same county—and only a mile or so distant from where the writer lives—gained distinction over 160 years ago for the choice peaches and other fruits which were grown there under glass.

The writer of the book "Craigmillar and its Invirons" has stated that from "1760 to 1785 the garden at Moredun (Midlothian) claimed pre-eminence as being the richest in the county, and it was believed to be the first in which forcing was carried out to any degree of perfection. Baron Moncrieff, the proprietor, used to boast that from his own ground within a few miles from Edinburgh he could, by the aid of glass, coals, and a good gardener, match any country in Europe in peaches, grapes, pines and every other fine fruit excepting apples and pears. These, he acknowledged, were grown better in the open air in England and north of France." These remarks serve to show that the peach, like the vine and the pine, received ample care and attention from the fine old horticulturists of the past.

Two hundred feet or so of the glass structure in which the peaches were grown at Moredun is still standing, and in a fairly good state of repair. It would have been very interesting to know the varieties of peaches grown at that period, but of this there is no record, so far as I know. Perhaps the very old variety, Royal George, would be among the number, as it is stated in M'Intosh's "Practical Gardener" "to be of French origin and was introduced to this country at or before the beginning of last century, as it is mentioned by Powell, gardener to George the Second."—DAVID ARMSTRONG.

[*This is the second instance lately of the mention of glasshouses standing for a century or more. It would be interesting to know if there are many glasshouses in existence in the country known to be over a century old. Perhaps readers could supply details of other examples.* ED.]

AUTUMN ROSES AT REGENT'S PARK

THE day when roses were specially named on account of their blooming during the autumn is now long past, and it seems as though most of our present-day garden roses flower as well in the autumn as in June and July, so that we went to the autumn show of the National Rose Society at Regent's Park on September 17th and 18th in the full expectation of admiring roses in quantity and of high quality. Nor were we disappointed, for there was an abundance of most delightful blooms to be seen, and if they lacked, perhaps, a little of their summer fragrance, they seemed to have gained in delicacy of beautiful colouring, although towards the end of the first day and during the Friday the genial warmth of the tents induced a most pleasant perfume. Following a wet afternoon, the warm but not too bright weather was ideal for a flower show, so that there was a large attendance and the blooms continued fresh and attractive.

As ever, the new seedling roses were the first consideration of a large number of enthusiasts, and long before noon there was the customary queue waiting to enter. There was an unusually large number of entries, and while all these seedlings possessed distinct attractions, only seven were singled out by the council, who awarded three gold medals and four certificates of merit.

Of the unfortunate varieties there were some we much admired, though, at the same time, we felt that the council had, no doubt, exercised a wise discretion in limiting their awards. John Henry, shown by Messrs. George Beckwith and Son, is a rich pink hybrid tea rose of distinct type. James Faris, one of Dr. Campbell Hall's seedlings, is a very large hybrid tea bloom, fully double and of very pale lemon shading, and of considerable merit as an exhibition bloom,

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though we suspect it to have rather too weak a stem for everyday use. Lady Florence Strong was among the unfortunates in only a degree, in that this delightful rose, which Messrs. McGredy and Son describe as reddish prawn shading to violet rose, with yellow at base of the petals, has already received a certificate, but did not gain the gold medal. Still, it is a most charming bloom of very fascinating colouring. Marion Cran, another of the McGredy roses, is flushed with orange scarlet on a golden ground.

The medal rose in the nurserymen's classes was a gorgeous bloom of H. V. Machin shown by Mr. C. Gregory; while with a vivid specimen of J. G. Glassford, Mr. J. N. Hart won the amateurs' medal. The Clay Challenge Vase, which is annually offered for the best new rose of the year, was awarded to the richly fragrant dark crimson Arthur Cook, which won a gold medal at the provincial show at Bath.

The large groups of representative roses continue to be popular with the exhibitors, and there were no fewer than nine in the large class, while the other two were also well filled. Although these exhibits contained generous quantities of excellent roses, there was a great sameness in the styles of treatment; nearly all the exhibitors filled their space with pillars of roses surrounded by baskets and vases. We appreciate the difficulties attendant on any departure from the conventional arrangements, but we are confident that the exhibitors possess ample skill and taste to break away and so add variety to their handsome collections. In Class 12, which required thirty-six distinct varieties of miscellaneous roses, Messrs. A. Harkness and Co. evolved a new and particularly charming method of treatment and received their due reward of the first prize.

In the principal group class Messrs. S. McGredy and Son were first with pillars and baskets of gorgeous blooms of Mabel Morse, Betty Uprichard, Golden Emblem, Mrs. H. Morse, Independence Day and similar beautiful roses. This was edged with polyantha varieties; while Mr. Elisha Hicks edged his adjoining second prize group with an attractive collection of rose hips. His chief varieties were Ophelia, Sunstar, Betty Uprichard and Joanna Bridge. Messrs. A. Dickson and Sons were third, and Messrs. Chaplin Brothers were fourth in this large class.

In the class for a slightly smaller group Mr. C. Gregory was first with an arrangement of corner pillars of roses arched to a centre of good blooms over a massed groundwork. Messrs. Prior and Sons, who were second, and Messrs. A. J. and C. Allen, the third prize winners, both had very good collections

Mr. G. Prince had a very pretty display of baskets and vases of La Tosca, Mr. H. Stevens, Hadley, Golden Emblem and Shot Silk in his first prize 6ft. square group, where Mr. W. Bentley was second and Mr. J. Mattock was third. The eighteen varieties of decorative roses were of high merit, and Messrs. Chaplin Brothers included beautiful blooms of the Rev. F. Page Roberts, Duchess of Wellington, Frau Karl Druschki and Butterfly. Mr. George Prince was a good second, and Messrs. Morse Brothers were third

The baskets of roses were not so numerous as usual, but Messrs. Chaplin Brothers had lovely blooms of Betty Uprichard, Mrs. Tresham Gilbey and Ophelia among their five first prize baskets; while Mr. H. Drew was second. The best three were of Lady Pirrie, Mrs. Henry Morse and Mme. E. Herriot, shown by Messrs. T. Smith and Sons; while Messrs. D. Prior and Sons had a beautiful basket of Ophelia in their second prize exhibit. They were first with Kirsten Poulsen, Alice Amos and Else Poulsen, three lovely baskets of polyantha varieties. Mr. C. Gregory had the three best baskets of exhibition roses; his varieties were George Dickson, Florence Forrester and Frau Karl Druschki.

LADY F. STRONGE, A HYBRID TEA OF UNIQUE COLOURING.

With exhibition roses the chief honour fell to Mr. A. (Sandy) Dickson, whose very good twenty-four varieties included Lady Moreen Stewart, Clara Curtis, Oliver Mee, Gorgeous and The General. Mr. C. Gregory was second, and he had fine blooms of J. G. Glassford, Admiration, Florence Forrester and Mrs. G. Marriott. The exhibits of eighteen exhibition varieties were also of considerable merit. Mr. George Prince won the first prize with such sorts as H. V. Machin, J. G. Glassford, Frau Karl Druschki and George Dickson. Messrs. H. Lane and Son were second, and Messrs. English and Son were third.

Tea and Noisette roses were very fresh and good. Mme. Cochet, A. H. Gray, Auguste Comte and Muriel Wilson, in Mr. Prince's collection of varieties, were very beautiful. Mr. H. Dreer, who was second, had good blooms of Marie Van Houtte, W. R. Smith and White Maman Cochet.

AMATEURS' ROSES.

The competition in the amateurs' classes was particularly good, and the quality of many of the blooms rather surprised the trade growers. This was particularly so with their vases of decorative roses, where Mr. S. W. Burgess won the first prize with excellent vases of Ophelia, Sunstar, Betty Uprichard and other valuable sorts. Mr. T. C. Wiseman was a very good second. Mr. A. L. Cook also staged admirable vases of decorative varieties, his examples of Betty Uprichard, Emma Wright and Ophelia were excellent; while in the class for amateurs who grow their roses unaided, Mr. S. E. Tattersall had equally meritorious blooms.

The exhibition roses were of equally high quality, and among the first prize winners were Mr. J. W. Hart, Potters Bar; Mr. H. Mitchell, Bradford; Mr. R. de V. Pryor, Hitchin; and Mr. J. Tiller, West Drayton, who had admirable exhibits.

The best roses grown within ten miles of Charing Cross were shown by Mr. A. N. Rogers of East Putney, who also was the chief winner in the five miles radius class. He showed good blooms of Constance Casson, Mrs. H. Bowles and Mrs. George Marriott. Tea roses were of even better quality than in the nurserymen's classes, and Mr. W. E. Moore had delightful specimens of W. R. Smith, Lady Plymouth, Mrs. E. Mawley, Mrs. H. Stevens and Auguste Comte. Mr. Moore also had the best six blooms in the class for pure amateurs. This class was especially popular with exhibitors, and contained many particularly good blooms. Mr. A. M. Darling, Tonbridge, had an especially good exhibit of George Dickson, J. G. Glassford, H. V. Machin and Frau Karl Druschki.

The many dinner-tables were very attractive and in the open class Mrs. A. Tisdall was first with a charming table of Ophelia, and she also had the best bowl of roses. The first prize amateur table was a charming arrangement of Roselandia by Mrs. Courtney Page; and Mrs. Oakley Fisher was second with the same variety. Mrs. Page was also first in the two classes for bowls of roses; while Miss M. E. West had the best vase.

NEW ROSES.

ANGELE PERNET.—This is one of the novelties that has already received a certificate of merit and now gets the highest award. It is a typical Pernettiana seedling, with neat shining leaves, fairly numerous spines and beautifully coloured flowers. At the French rose trials at Bagatelle it aroused the enthusiasm of all the specialists and was there awarded a gold medal. It is a well formed bloom carried on long stalks, and the colour may be described as a coppery orange flushed with pale peach pink on the insides of the petals. Gold medal to Messrs. George Beckwith and Son.

DESMOND JOHNSTON.—The blooms were scarcely open enough, but when more advanced it should be a very fascinating rose. It is a long-stemmed shapely hybrid tea bloom of the type favoured by the market-men, and added to this is a vivid scarlet flushing on a golden base. The purplish foliage is firm and clean. Certificate of merit to Messrs. S. McGredy and Son.

GOLDEN GLEAM.—A very vigorous variety, throwing up stout purplish stems which carry large perfectly shaped, rich yellow blooms which have the outer petals delicately stippled with rose pink. Certificate of merit to Messrs. S. McGredy and Son.

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THE GARDEN

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A REQUEST

A FEW weeks ago I wrote a short paragraph called "A Request," in which I asked readers to send any notes on their plant experiences. This small suggestion has borne fruit amazingly. A number of exceedingly interesting notes are being sent in; in fact, those that have had to be discarded are surprisingly few. Some of these notes have already been published, others are being held over until they become topical owing to the approach of the planting or flowering periods of the plants they deal with. In all cases our readers are enthusiastic. One note had the following letter attached:

> "The suggestion the other week about gardeners sending in notes, either long or short, is just the very thing for horticulturists to take up. It brings out new talent which, for want of courage, has been lying like a dormant or latent bud, waiting to be encouraged to burst. I wish the idea all success."

We do not claim this idea to be a new one, but we do claim that no other paper has fully realised the possiblilties of using its columns to such an extent for exchange of those little extra bits of information which often mean so much to the successful cultivation of all plants. We ask you all to help your fellow gardeners by sending in notes of successes and failures.

FORCING

On another page in this issue will be found the first half of an article on early vegetables by Mr. Edwin Beckett. In it he points out very wisely the fact that many more early vegetables could be grown at home—and the same applies to flowers. This is a point on which I feel very strongly. We are told on all sides that it is necessary to restrict our imports, particularly from foreign countries, as apart from Colonies. It is certain that an enormous sum of money is sent out of the country every year to such early fruit and vegetable centres as France, Spain and the Canary Islands, in return for our supplies of early or out-of-season vegetables and flowers. Of course, it is impossible for every gardener to aim at growing his own early supply; many of them have not got sufficient accommodation, but it is the duty of every gardener to utilise what empty space he can for forcing and the duty of every owner to see that this is done. There is little doubt that most glasshouses and frames, large or small, are used at the present time in a most haphazard manner. Everyone knows that they are costly to erect and even more costly to keep up, and yet there is far too little method about their use.

As Mr. Beckett points out, much of this early forcing would utilise space and material which would otherwise be lying idle. If a little ingenuity is exercised, it means no added fuel consumption, which is the greatest expense in winter. It certainly means a little more labour, but that is not an impossibility.

I have no figures before me about the heavy importations of early forced vegetables and flowers, but they must run into many hundreds of tons, costing many thousands of pounds. At the best the demand for out-of-season produce is an exotic growth, but it is a sign of the times. If we feel that we cannot do without new potatoes in January and strawberries in the spring, we should, at any rate, see that they are home grown and that money is not going out of the country for what, after all, is an unnecessary import. Every gardener and every garden owner who can spare the space, should give very serious thought about supplying at least a portion of their household requirements of early flowers and particularly of early vegetables.

FLOWERS IN VASES

There is much to be said in favour of the increasing number of classes devoted to decorative vases and bowls in flower shows, for it is obvious that we see as much, if not more, of flowers in house decoration as we do growing in the garden. Usually the quality of flowers seen in these classes is excellent, the same cannot often be said of the arrangement. Perhaps this is hardly fair criticism, for what looks well in the house may not have the same appearance on the show bench; but the judges should make some allowance, for, presumably, the class is arranged to show the value of the particular flower for cutting and ordinary indoor decoration. The usual fault found with such exhibits is that the vases and bowls are too crowded.

Arrangement of cut flowers can be divided under three heads—the Japanese, the average, and the mass arrangements. The Japanese is the simplest and the most difficult, for success is attained by beauty of form with hardly a thought as to colour. This means that the receptacle and the plant must make a combination in grace, and that the flower or branch must be chosen for the vase or bowl, or the vase or bowl for the flower. This is difficult at all times, and impossible when you have small choice of receptacles. This style of arrangement looks out of place in a room which is crowded with furniture and crammed with knick-knacks. It looks charming in a room that verges on the austere.

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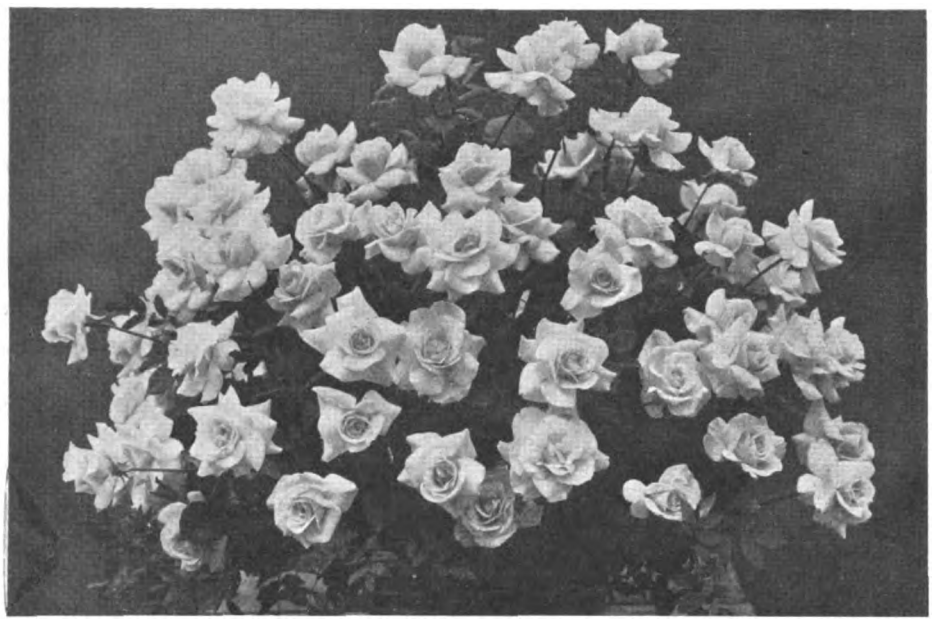
The second or average class is the commonest and most satisfactory, for it depends on variety and the clever use of contrasting colours, shapes and sizes. It is the product of a half-hour walk round the garden picking here and picking there and collecting a posy. Everybody has their own preference of colour schemes, but form is often wanting in the arrangement of vases. Some flowers seem to fall into a natural grace when placed in a vase, others have to be coaxed and petted into position. Natural taste must predominate, but vases should never be overcrowded. One point is often overlooked, and that is that vases should be in a certain ratio to the height and size of the flowers. Large-headed flowers should never be arranged in vases with a narrow top however tall they may be, and the opposite is just as true. In the same way tall flowers look overladen when shoved into a dumpy vase. The use of a vase of wrong shape or size intensifies any shortness of stem due to drought or an error in cutting. The shape of the vase and bowl is also of importance, and the more they rely upon grace of line and the less on external decoration the more useful they will be found. There is a happy mean which is perfect and is easy to attain once your attention has been drawn to it.



A MASSED ARRANGEMENT OF ROSE MADAME BUTTERFLY AT THE AUTUMN ROSE SHOW.

The third class is the massed effect, when dozens of blooms of one particular plant are massed in a bowl or a large vase. This only looks well in a heavy room which is already crowded and is, indeed, necessary, for slimly built arrangements are rather lost in a crowded room. The disadvantages of this type of arrangement in an ordinary house are several. The chief one is that it is next to impossible to prevent a massed effect from looking overweighted and heavy. It may give you a blaze of colour and a fine colour effect, but it is unnatural; also in the ordinary garden it is often difficult to pick masses without leaving the bed or border rather desolate. Surely the joy of vases of flowers is to bring a little of the atmosphere of a garden into the house, and this can best be accomplished by making your arrangements as natural as possible. Give a little study to the form and shape of a flower and try to evolve a scheme which will show off the natural beauty to the greatest effect.

E. H. M. C.

PERENNIAL LOBELIAS

"SURELY *that's* not a lobelia," said an old friend to me when I pointed to a bunch of the new Purple Emperor in Mr. B. Ladham's interesting group in the Hall on September 8th. His remark only showed that, like a good many more, he was not aware of what was going on among the perennial lobelias. The multitudinous garden varieties of L. Erinus (the indispensable blue in Victorian "bedding out"), and even the totally distinct fulgens variety, Queen Victoria, with its tall spikes of rich red flowers, may be said to belong to that well known omnibus group of plants entitled "Too well known to need any description." But this rich purple hybrid, that pretty blue species syphilitica, and that dark-leaved magenta—well, nearly magenta—Ladham's "latest out," Kimbridge, are all so upsetting to ideas based on knowledge of the ancients only, that one feels that the new colours and the increased hardiness of these little-known perennials ought to be made more widely known. As a matter of history, Mr. Ladham is not the first person to use syphilitica, which is the species which has made these changes by giving these new colourings and this greater robustness to the race. In or about 1895 hybrids between fulgens, Queen Victoria and syphilitica were put into commerce by the French firm of Rivoire Père et Fils of Lyons. Whether these are still to be had I cannot say; nor yet whether any of these are identical with those now offered by Ladhams. It is sufficient for us to know that the English headquarters for these new lobelias is the aforementioned firm of B. Ladhams, Limited, of Southampton, and that, if anyone wishes to see to what perfection the plants may be brought by proper cultivation and a situation to their liking, the goodly sight may be seen in Mrs. Humbert's garden in the little village of Kimbridge.

It was a tiresome job to lift and keep the old Queen Victoria through the winter. The hybrids with syphilitica blood may be left where they have bloomed, all winter, and divided into single crowns when growth commences the following spring. The exact time varies in different localities. Division must not take place until the cold and drying March (?) winds are over. They then require no lifting and potting. They should be planted at once in their flowering quarters. This annual lifting and dividing is not an absolute necessity everywhere; but as with tulips, so with these lobelias, it is quite the right thing to do. Rich soil is a *sine qua non* if fine spikes are to be had. Plenty of moisture during their period of growth is also requisite for their highest development. Given these, along with timely staking, if the situation is windy, and a delightful display in early September is assured. Fine bone-meal and a touch of superphosphate of lime may be added when the beds are being prepared. Of course, they may be planted in clumps in borders just as well as in beds by themselves or in combination with something else. I remember so well seeing a most happy arrangement in a Staffordshire garden not long before the war. The centre was either Firefly or Queen Victoria with an outer circle of finely flowered Salvia patens. The rich blue of this last-named made an ideal setting for the taller lobelias.

The different hybrids vary considerably in their heights and manner of growth. Some put forth a good many side shoots, while others have practically none. I have never had the courage to pinch out the main shoots of these branches, but I feel convinced that it might be done if a later bloom than normal is wanted,

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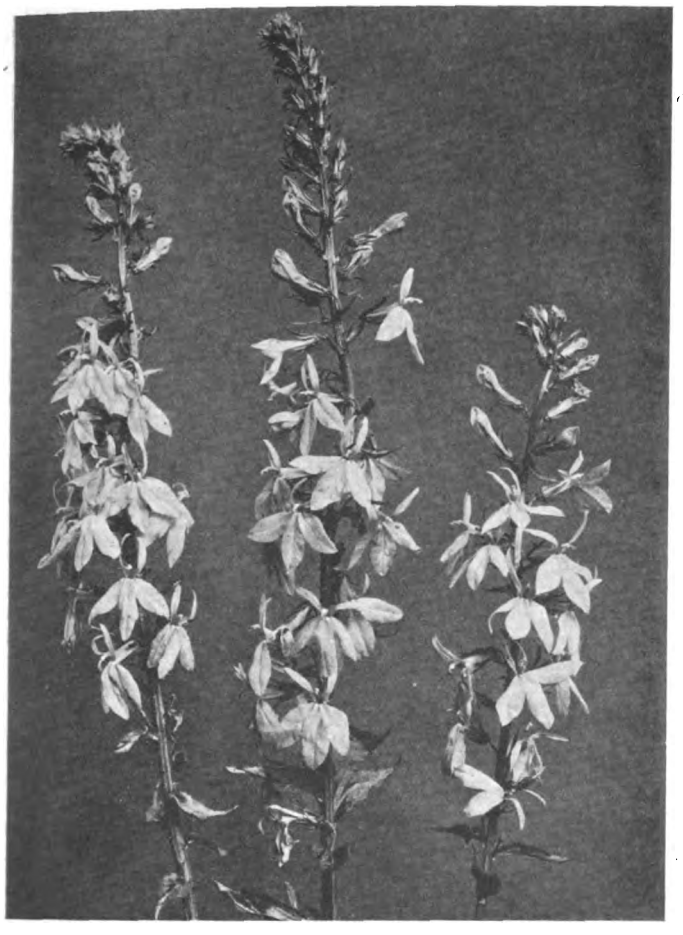


THE PERENNIAL LOBELIA—B LADHAMS—A HIGH-WATER MARK AMONG SYPHILITICA HYBRIDS.

or if necessity has made the planting out more sparse than future developments show that it ought to have been. In other words, a given area may be covered with a fewer number of plants should this be done. Normally, a space of from six to nine inches should be left between each at planting time. There are not at present a large number of varieties in commerce—probably not more than a couple of dozen, including syphilitica and s. alba, and also Queen Victoria and Firefly, which are of the fulgens type. I have no doubt about my favourites. One is the grand B. Ladhams, a bright scarlet with green foliage. I think Mr. Ladhams himself thinks this is his show child, for when I asked him which variety he would like to have photographed he at once said "This," pointing to B. Ladhams at the same time. I couple with this Shirley Beauty. It is a plant of a deeper dye altogether, both in flower and foliage. This last is wine-coloured, and the blooms are of the colour of ripe mulberries. In purples I like the redder-toned Purple Emperor, but the few visitors who have seen my collection this year all prefer the rich and deeper coloured Purple King. I fancy I ought to say I like Mrs. Humbert, but, somehow, I do not particularly care for it.

I do not love thee, Doctor Fell,
The reason why I cannot tell;
But this alone I know full well,
I do not love thee, Doctor Fell.

It is a pink, but neither so large a flower nor such a pretty shade as we find in Salmon Queen, which is my choice in this colour. Carmineus, a very lovely shade of cerise, makes my sixth in this list, but were they placed in order of merit it would follow B. Ladhams.

Kimbridge, named after the village where Mrs. Humbert lives, is a weird mixture of almost magenta flowers and deep-coloured foliage. I think I would like a big mass of it. The improved form of syphilitica itself is well worth growing, as the pale blue flowers are rather larger and have a much clearer look than the original. Syphilitica alba is all right for those who like white flowers. I ought to add that syphilitica itself and pretty well all its hybrid forms are excellent for those who have bog or waterside gardens to think about. They do well in such positions.

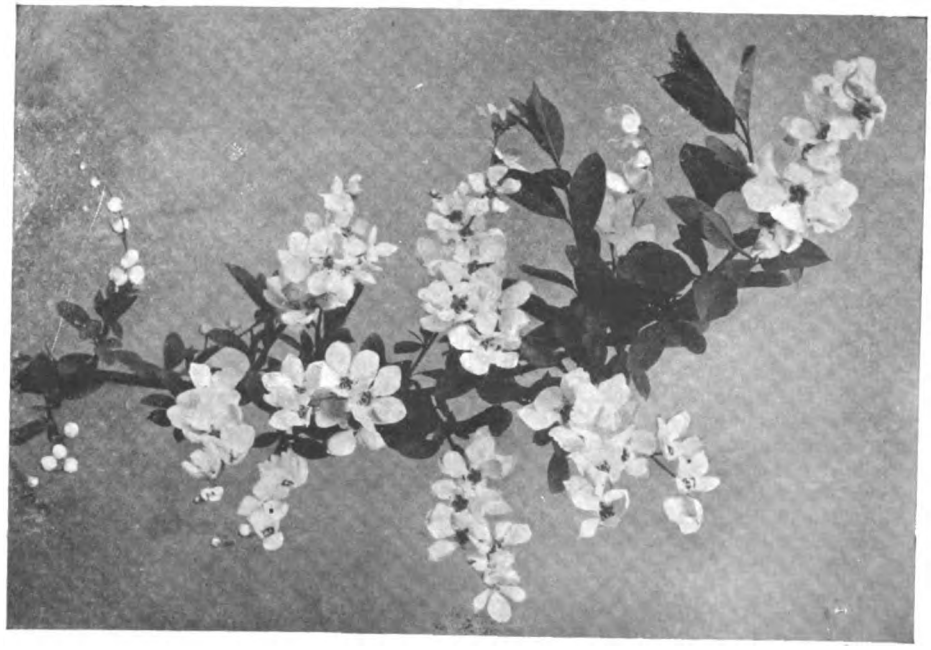
JOSEPH JACOB.

SOME CHINESE SHRUBS & TREES of our GARDENS

(Continued from page 539.)

CORNUS controversa is a species of wide distribution, found in Japan, Korea and western China. Trees which have been planted about fifteen years are now rather over 25ft. high, and flower and fruit profusely. At the season of flowering (late June) the upper sides of the branches are thickly covered with flat flower clusters 6ins. or 7ins. in diameter. The flowers are of a creamy white colour, followed by glossy fruits of a metallic blue, which are, unfortunately, readily devoured by the birds. C. Kousa is native to Japan, and also found by Wilson in central China. It is the exceptionally large white bracts which give the garden value to this species. It may well be considered one of the most ornamental small trees introduced by him from China. There are to be seen in gardens two forms of this species, one inferior to the other. The finest form is that discovered by Wilson in China and the inferior form is of Japanese origin.

The cotoneaster, as before stated, is one of the genera which has had a large number of additions from China. No shrubs are more easily cultivated than these. They thrive in any soil that is not too waterlogged, and are very well adapted for covering chalk banks and similar poor soils. Found most abundantly in the cool temperate regions of northern Asia and especially China. It is not a genus that can boast of showy flowers, although even these cannot be despised by any lover of plants. Their great garden merit lies in their wonderful



EXOCHORDA GRANDIFLORA A DECIDUOUS SHRUB OF GREAT BEAUTY. PRODUCES SNOW-WHITE FLOWERS IN MAY.

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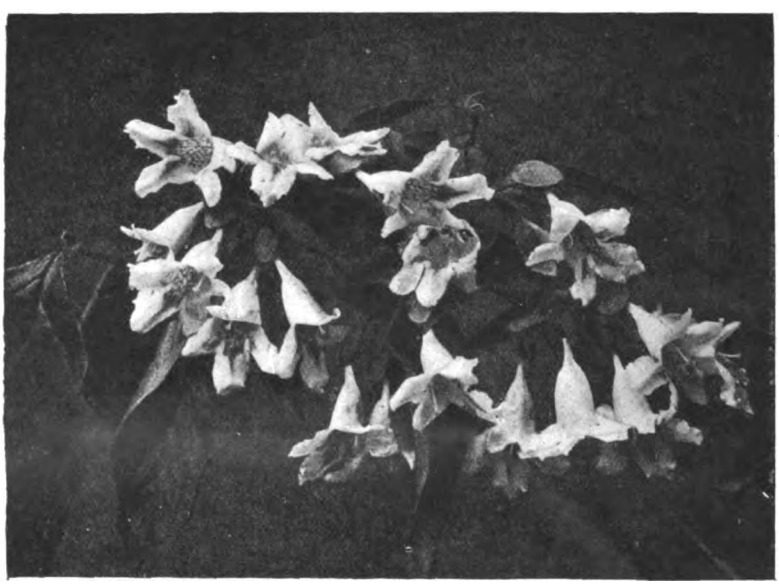
berrying propensities. It is a genus comprising species of very widely diverging habits of growth, varying from prostrate subjects suitable for the rock garden to small trees, and from graceful, pendulous, arching shrubs to those of stiff and rigid upright form. The following represent these four habits:

C. adpressa, a very dwarf, close-growing, rigidly branched, deciduous, prostrate shrub, not exceeding about 1ft. to 1½ft. in height; while C. humifusa is of similar habit but evergreen. Both species berry freely in the autumn. One of the best prostrate spreading species for mass planting is C. horizontalis (Davidiana), which is capable of beautifying any unsightly bare spot in the garden. Of the Chinese tree-like cotoneasters, mention must be made of C. pannosa with its masses of small red berries and silvery evergreen foliage, and C. Franchetti with its larger orange red fruits and similar but larger leaves. (The two species which attain the greatest dimensions are the well known C. frigida and the less frequently seen C. Lindleyi. The latter bears black fruits. Both are natives of the Himalaya.) Of the pendulous evergreen species, C. salicifolia and its varieties, C. Harroviana and C. Henryana, are the most worthy of notice. The latter is of a more tabulate than drooping habit. In this class, as in most, the fruits hang in corymbose masses and vary in shades of red. C. rotundifolia is of stiff, angular, branching nature, and possesses fruit of an exceptionally bright coral red. Another of this class is C. bullata, the fruits of which are the largest of any species in cultivation. A counterpart of this species is C. moupinensis, differing in possessing black fruits; this plant is seldom seen correct to name outside a botanical garden.

Enumerated in Sargent's book of Wilson's introductions are twenty-six species and varieties of daphne. Of those native to China, Daphne Genkwa is a real gem, and when laden with its blue flowers is a sight that may well make any garden enthusiast envious of possessing a specimen. It is a deciduous species, the flowers opening in early May before the foliage buds expand. It was introduced from China by Fortune as early as 1843, and later from Japan, where it has long been cultivated but is not a native. It is a plant calling for particular attention, and cannot be classified as a shrub of easy cultivation.

Daphne retusa is an evergreen species. Its flowers are not unlike those of the well known D. indica. It is, however, much hardier than the latter and differs much in its habit of growth, which is stiff, dense and erect. It usually does not attain a height of more than about 2ft.



THE FRAGRANT FLOWERS OF DIPELTA FLORIBUNDA.

Deutzias are a large, beautiful and easily cultivated genus of hardy June-flowering shrubs. All the species bear a great, common resemblance one to another. In habit of growth size, form, and colour of flower and leaves there is a distinct family likeness. The most beautiful representative is D. longifolia var. Veitchii, a deciduous shrub with long, narrowly ovate-lanceolate leaves, and carrying in June corymbose inflorescence 2ins. to 3ins. across of rosy purplish flowers, which in size and richness of tint make it the best Chinese deutzia in cultivation.

Exclusively Chinese are the dipeltas, of which there are only four known species, allied to and very closely resembling the well known diervillas. The most frequently seen is D. floribunda. It is a deciduous shrub attaining a height of about 8ft. to 10ft. The flowers are fragrant and produced either solitary or in small clusters of up to six in each inflorescence, pink, marked with yellow at the throat of the funnel-shaped corolla. The thin bark of the old wood peels off in large flakes, individual pieces measuring 1 ft. or more in length.

Euonymus alatus and its several varieties are found both in China and Japan. Its somewhat corky winged wood makes it one of the most distinct of the genus. Its great garden value lies in its quality of being able to assume very fine autumn colourings. In a recent bulletin of popular information published by the Arnold Arboretum this shrub is spoken of as being without a rival in the brilliance of the deep rose colour passing to scarlet, of its autumn leaves.

Closely allied to the spiræas is the exochorda, a small genus of deciduous white-flowered shrubs. A fine variety is E. grandiflora var. Wilsoni, with extra large paper-white flowers borne on slender, arching stems. It is, as are all members of this genus, of very elegant habit of growth, with slender drooping branchlets.

There being so many Chinese hydrangeas, it is difficult in a short article of this kind to know which to include. Forty-five species and varieties are described in "Plantæ Wilsonianæ." H. Sargentiana with its large rough leaves and bristly thick young growths make it an effective subject for a sheltered border or woodland, and H. strigosa macrophylla, a shrub which is capable of attaining a height of 6ft. to 8ft., when covered with its large bluish flat inflorescences, forms a unique and pleasing sight.

Of hollies, one which is a native of central and western China, Ilex Perneyi, is a valuable and handsome addition to the slow-growing evergreens. Its somewhat squarish, peculiarly formed spined leaves are distinct, and when once known can never be confused with any other species. As with all hollies, its attractiveness is greatly enhanced when in berry.

Both on account of its hardiness and prettiness, Kolkwitzia amabilis deserves a place in every shrubbery; even when not in flower it is conspicuous by the remarkable elegance of its growth. The delicate pink flowers, flushed with yellow, are produced during late spring and early summer; in form and colour they resemble Dipelta floribunda, but in size may best be likened to the flowers of that beautiful villa garden shrub, Abelia longitula.

Included in the numerous privets native to China are both evergreen and deciduous species. One of the prettiest small-leaved evergreens is Ligustrum ionandrum, with its dark, almost blackish green glossy leaves, which do not exceed about one-third of an inch in length. The clusters of black fruit are similar to those of our native privet, a despised plant, although one of the most handsome of black-fruiting bushes.

Chinese honeysuckles are a genus comprising very variable species. Some are of shrubby habit, while others are climbers; some are evergreen and others deciduous.

Lonicera nitida in flower is quite inconspicuous. It is a dense bushy evergreen shrub, with slender, arching branches bearing leaves in form and size not unlike those of the Ligustrum ionandrum. It is very unfortunate that a hardy shrub with berries of so unique a colour should be so unproductive. L. ligustrina, which is almost identical with L. nitida, differing a little in its more upright habit of growth, is here proving itself to be a more free-fruiting species. The fruits of both these species are of a shiny, translucent texture and of a distinct purplish colour. LL. syringantha and thibetica, with their delicate lilac-coloured and scented flowers, are both welcome additions to the shrubby honeysuckles. Of the newer Chinese climbing honeysuckles, L. Henryi is worthy of note. Its large evergreen leaves and clusters of almost jet black fruits in autumn are its two best qualities.

H. G. HILLIER.

(To be concluded.)

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THE INTEREST OF THE HARDY CYCLAMEN

PERHAPS no small genus of plants yields a richer harvest of interest to naturalist and horticulturist alike than does the cyclamen. In the first place, to all except botanists it must come as a surprise to find that the cyclamen belongs to the same family as the primrose. The cyclamens are a very select family, comprising but few species, and these come from a very restricted area in southern Europe and western Asia. In our gardens we can only persuade those from southern Europe to grow. The collector's zeal is soon satisfied, and yet each individual has some point of interest peculiar to itself, apart from such characteristics as the reflexed petals and the marvellously twisted bud, which are common to the whole family. There appears to be a good deal of doubt and confusion among the various authorities as to how many distinct species really exist. Robinson, in his " Flower Garden " (twelfth edition, 1914), gives some six.

In their native haunts the cyclamens are found in the shelter and shade of a copse or small wood. If we are to have any success with these little flowers in our gardens, we must try to imitate these conditions when planting the corms. The hardy cyclamens fall naturally into two groups, those that flower in the spring and those that produce their blooms in the autumn. The best known of the spring-flowering cyclamens is C. Coum, which has dark green foliage and rose-coloured flowers. This comes into flower very early—often, in fact, before the snowdrop. On this account it is a most valuable asset to the winter garden.

Whether C. ibericum is a distinct species or merely a variety of C. Coum seems to be a moot point. It is a very variable plant with foliage more or less silver-zoned and flowers of various shades from white to deep crimson. Then there is C. vernum which comes into bloom about April or May. The silver-marbled leaves of this species appear first before the flowers.

Of the autumn-flowering cyclamens we need make mention of but two, C. europæum and C. neapolitanum.

The first of these is very common in Switzerland and is there known as " Alpen veilchen," Alpine violets, by the school children, who pick bunches of them as do our own children their cousins, the primroses. These fragrant bunches of little crimson flowers they offer to tourists for a few centimes. The flowers looked very pretty growing in thousands in a little copse on the shores of the Lake of Lucerne, where the writer saw them some years ago.

CYCLAMEN COUM, WITH ROSE-COLOURED FLOWERS.

In September or early in October C. neapolitanum pushes up its buds from the bare soil before the leaves have appeared. When the stems have reached some three or four inches the charming little pink flowers open. There is also a lovely white variety which is not so common. When the flower fades and the seed is set, it drops off. Nature then performs one of her miracles. The stem proceeds to coil itself up. Day by day another coil is added to the spiral until the seed capsule is brought close to the ground and, in fact, is often forced into the soil. This, as Reginald Malby suggests in " The Story of My Rock Garden," is a provision of nature to ensure the next generation, as, flowering late, the seeds would be exposed to all the inclement weather. The leaves of this choice plant expand after the flowers and are very beautifully mottled with silver. They remain fresh the whole winter through and on into the early spring. They thus form an admirable setting for such early-flowering bulbs as the snowdrops, scillas, chionodoxas and the miniature daffodils, serving also as a protection against the soil splashing on the delicate flowers. E. CAHEN.

NOTES OF THE WEEK

NOTES FROM A GLASGOW ROCK GARDEN.

WITH shortening days there is a noticeable falling off of flowering plants, and perhaps this lack of flowering commences sooner and is more pronounced on the rockery than in any other part of the garden.

There it is that many plants, which, even though they may bloom in the hey-day of the season, are not given a second thought then, because they are eclipsed by the glory of plants which are essentially alpines.

Plants, therefore, which remain in bloom or produce blooms from August onwards are, indeed, valuable. Whether or not plants will bloom so late depends chiefly on the times of planting and the atmospheric conditions, and those which do flower then seem to be worthy of more than passing notice.

From among others the following have been noted as blooming well late in the season :

Arenaria montana is a sticker of the first water, for after commencing to flower early in June, it is still going strong.

Campanula arvatica (received here as C. acutangula) has been for a long period, and is yet, sending out its sprays of star-like, almost purple flowers. Plants of this, put on a deep ledge of a newly constructed piece of rockery having a western aspect, have been remarkably prolific. Plants of C. haylodgensis are still yielding many of their pale blue, bell-shaped flowers. Of the white campanulas now in flower (early September), the two most prominent are C. carpatica var. alba, carrying its fairly large saucer-shaped flowers on a spray, and C. Warley alba, a splendid semi-double, which it may be noted, recently received an award of merit. Of procumbent habit, it flourished in a loamy, gritty soil in a pocket near the path and a thin top-dressing of granite chippings proved of immense value in preventing the petals becoming splashed with dirt during the showery weather.

It was not until the last day of August that Dianthus graniticus gave up flowering. With us is has been one of the most free-flowering of its genus and with its low growth and its erect stems which attain a height of 4ins. to 6ins., and usually carry two red blooms, it certainly is a desirable plant.

The most conspicuous member of the heronbill family just now is Erodium hymenodes, but, alas, I fear it will be the first to object to an early frost. Gentiana Freyniana is, with us, the sole one now in flower, and how gorgeous it is. Its colour would ensure admiration at any season, but now,

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in the late season, it seems particularly attractive.

New plants of Mazus Pumilo, native of New Zealand, have given the greatest satisfaction in a shaded nook. With August came the meadow saffrons, the two first being Colchicum autumnale and C. speciosum. Plants of Myosotis azoricus raised from seed sown in the spring are now producing compact heads of flowers of a rich violet colour. True to its reputation as a late flowerer, the winter savory, Satureia montana, commenced showing its whitish-purple blooms about the middle of August and now the plants are a mass of bloom. Of the stonecrop, Sedum Ellacombianum is decidedly the most noticeable here just now. Scutillaria indica var. japonica is persistent with its supply of purplish flowers, and the yellow-flowered S. orientalis is a good late season plant.

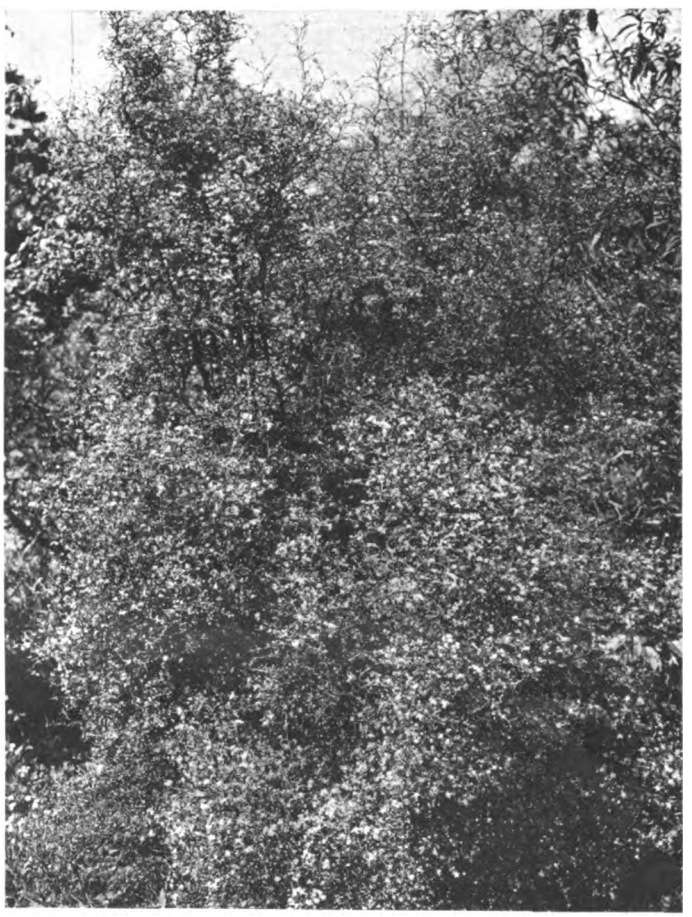
To close these notes without mentioning Viola orphanidis would, to my mind, be wrong, for this gem, straggly though its growth, can be relied upon to go on sending out its miniature pansy blooms long after other plants have retired for the season.

True it is that some of the later-flowering rock plants are not of the high quality of some of the early season plants, but it must be remembered that blooms now are particularly welcome and the plants which will supply them should be considered when preparations for next season's flowers begin.—W. HOWELL.

COROKIA COTONEASTER.

THIS curious member of cornaceæ is so often quoted in articles, and such fine specimens exist at such gardens as Nymans, that it is a wonder it is not more commonly grown. It is a native of New Zealand, where it lives in the scrub in dry districts up to 3,000ft. The native name is Korokio. It is an evergreen shrub up to 8ft. in height and, as will be seen from the accompanying illustration, the branches are peculiarly twisted and interlacing. The leaves are smallish and obovate, covered below with a thin white tomentum. The flowers are numerous, star-shaped, about ½in. in diameter and of a good clear buttercup yellow. It does not often fruit in this country, but the fruit is in the form of red drupes, like small Cornelian cherries. In the south and west it has long been sparsely grown in the open and has succeeded extremely well. In the north and east it is usually grown as a wall plant, but there is every reason to suppose that in many gardens it will thrive in the open if sheltered from the east and north.

In New Zealand both C. Cotoneaster and the other two species, C. buddleioides, with large dark green shining leaves about 3ins. to 5ins. long, and C. macrocarpa, from the Chatham Isles, with broader leaves, are rapidly becoming more popular in gardens, which is a proof of their worth, for New Zealanders are stern critics of their own native plants. There is also a hybrid in existence, C. Cheesemanii, a cross between C. Cotoneaster and C. buddleioides. It is doubtful if C. buddleioides would grow in this country, except in the west, as it comes from the neighbourhood of Auckland in the extreme north, but C. Cotoneaster is such an interesting plant that it is well worth growing in a position where it can be sheltered from cold winds and yet get the maximum of sun.



AN OLD BUSH OF COROKIA COTONEASTER AT NYMANS.

HARDINESS OF RHODODENDRONS IN DENMARK.

[The following interesting note has been received from a Danish correspondent. Excepting RR. auriculatum, decorum and Williamsianum, which stand in half shade, they are all growing together on a slope facing east, in full sunshine from sunrise to three or four in the afternoon.—ED.]

THE undermentioned rhododendrons have withstood two severe winters without damage, unless otherwise stated. The numbers nineteen and ten after the names mean degrees in Centigrade below the freezing point during the winter 1923-24, an exceptionally long and severe winter here, and ten degrees in March 1924-25. Many buds had started to open in the mild weather in February, followed by many nights with temperatures ten degrees Centigrade under the freezing point.

Where stated "Börgesen," the observations are reported by Dr. Phil. F. Börgesen, Hellebæk, in Denmark, who also made some observations in the hard winter of 1921-22. Otherwise the observations are made by me in my garden at "Brændkjærhöj," Kolding, Denmark, on a very exposed place and rather windswept.

Aemulorum, 10; ambiguum, 19; argyrophyllum, 19; auriculatum, 10; brachyanthum, 10; brachycarpum, 10; calostrotum, 10; campylocarpum, 10 (Börgesen); canadense, 19; Catawbiense with hybrids, 19; caucasicum, 19; chamæcistus, 10; cinnabarinum, 19 (Börgesen); concinnum Coomb., 19 (Börgesen); concinnum Harrow, 19; dauricum, 19; Davidsonianum, 10; decorum, 10; fastigiatum, 10; ferrugineum 19; flavum and many of its hybrids, 19; Fortunei, 19; glaucum, 10 (with a little glass protection); hippophæoides, 10; hirsutum, 19; hybridum, many hybrids, among them Cunn. White, 19; Loder's White, 10; Pink Pearl, 19; præcox, 19; impeditum 19 (Börgesen); intricatum, 19; kamtschaticum, 19; Kæmpferi, 19, rather badly damaged, but not killed; ledifolium, 19; lutescens, 10; maximum, 19; pentamerum, 19; molle with hybrids, 19; moupinense, 10; mucronulatum, 19; multiflorum, 10; nudiflorum, 19 (Börgesen); occidentalis, 19; obtusum amœnum and Hinodigiri, 10, badly cut back, but not killed; oleifolium, 10, as obtusum; oresbium, 10 (Börgesen); oreodoxa, 10; oreotrephes, 10; parvifolium, 19; plebeium 10; ponticum, 19, some badly damaged, some undamaged (Börgesen); pseudoyanthinum, 10; punctatum, 10; racemosum, 19, badly cut back, but made good new growth; rubiginosum, 10; Smirnowi, 19; Thomsoni, 10; Vaseyi, 19; villosum, 10; viscosum, 19; Williamsianum, 19; yanthinum, 10; yunnanense, 10, flower buds damaged, probably because they were near to open in March when the frosts came. —AKSEL OLSEN.

NOTES ON CHRYSANTHEMUMS.

THE border chrysanthemums are charming plants and enjoy the favour of rich and poor alike. Their popularity is so wide that they are to be found growing in the gardens of the great and in those of the humble cottagers. This, of course, is not to be wondered at when we think of the floral fête of fairest flowers flaunting their richest tones of gold and brown and other shades, making the gardens gay with colour over a lengthy period, right on, indeed, until the days get dark and dismal and approaching winter draws quite near.

Many and varied are the varieties in cultivation. Yet Mme. Marie Masse and its many sports have had a firm foothold in gardens for many years, and are still very popular. We cannot, of course, marvel why the chrysanthemum has gained such widespread favour, when we see such finely coloured and well formed flowers so freely produced by each plant, and I venture to say that poor, indeed, would be an autumn display in a garden without the charming "mums."

Then, as cut flowers and decorative material they have secured a very high place in the floral world. The ease, too, with which plants can be grown and propagated has, no doubt, added greatly to their universality.

However, we must not think that plants will grow well anywhere, as starved and neglected chrysanthemums present a sorry spectacle, and, usually, it is those neglected plants which harbour and have their foliage disfigured by that troublesome and dreaded pest, the leaf miner, which is the maggot of the marguerite fly.

Varieties there are which show shyness in producing young growths in quantity at a period of the year when cuttings are wanted. Chrysanthemums of this category should be lifted before winter sets in and placed in a cold frame or in cutting boxes among a light sandy compost.—D. A.

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APPLE ST. EVERARD.

DIANELLAS.

THESE beautiful and easily grown plants are, unfortunately, all too rare in our gardens, and the ease with which they are propagated makes this all the more difficult to understand.

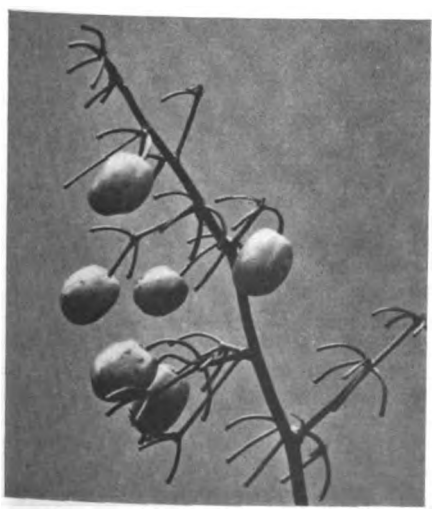
There are some half-dozen varieties in cultivation in this country. They are considered tender, but I have grown them in exposed positions in both Surrey and Sussex without injury of any kind, and, moreover, the plants grew well and increased rapidly.

They are natives of Australia and Tasmania, and their chief beauty lies in the wonderful blue berries, produced in some cases by the hundred.

Just fancy: berries of the richest blue and the size of hazel nuts, hanging in clusters on their thread-like stems. The nearest approach to their loveliness being the fruit of Billardiera scandens, also from Australia. The foliage is of varying length in the different varieties, and ranges in length from a foot or so up to 4ft. In colour it varies from glaucous to deep green, and in all varieties it is grass or sedge like.

Propagation is effected by division and by seeds sown in spring in gentle heat. A position in the herbaceous border or front of shrubbery is suitable for them. They do well in a good loamy soil to which is added a little peat or leaf-mould.

The varieties mostly met with are: D. cœrulea, which bears fruit of large size, of brilliant blue, and stout foliage; D. intermedia, a slender grower, producing graceful sprays of dark blue fruit the size of large black currants; and D. tasmanica and its variegated form which reaches 4ft. when well grown, and presents a beautiful picture.—J. HILL, *Paignton*.



THE BLUE BERRIES OF DIANELLA TASMANICA.

TWO GOOD APPLES.

IN St. Everard we have a first-class dessert apple, and it is undoubtedly the finest flavoured early apple in commerce. It was raised from Cox's Orange Pippin and Margil, and it is in season in September. The colour is a ruddy crimson, and the flesh rosy yellow, being very crisp, sweet, juicy and of a fine aromatic flavour. In general appearance and size it is somewhat similar to Cox's Orange Pippin, and it is valuable on account of the fact that it ripens much earlier than that well known apple. The tree is a good grower, and a prolific bearer.

There has been a great demand for this apple during the last two or three years, and late in the season of 1924–25 it was difficult to procure good specimens. Therefore, it behoves readers who wish to secure this excellent and desirable variety to place their orders in the near future.

Rev. W. Wilks is another apple admirably suited for both small and large gardens, in fact it is everybody's apple, because it will bear a good crop of fruit on very small trees. It is a culinary variety, excellent for kitchen purposes during the month of September, October and November. The specimen illustrated was supplied by Mr. J. C. Allgrove, Langley Nurseries, Bucks, where this splendid apple was raised from Peasgood's Nonsuch and Ribston Pippin. It weighed exactly 16 oz., was 12ins. in circumference and 7ins. from eye to stalk. The flesh is white, juicy, and pleasantly flavoured, while the skin is yellowish green, spotted with brown and scarlet. The variety possesses a robust constitution, and produces plenty of stout fruit spurs. When cooked it is delicious, and for baking purposes it is among the best. On the show bench it generally heads the list in its class.—T. W. B.

WHITE HEATHERS.

THERE is a popular opinion that all heathers are difficult to grow and that the "White Heather" of romance is never really seen in gardens. Both of these ideas are, of course, entirely erroneous. Heathers will flourish in any lime-free loam and generally do as well, if not better, under cultivation, than on the moors. This last remark applies to "White Heather" in particular, there being a number of varieties of Calluna vulgaris in white which, while they vary very widely in length of flower spike and stature, can all claim to be, if not the genuine article, something much nearer to it than the "Scotch White Heather" one sometimes sees being offered as bait to the unwary.

As the best time for planting is at hand, I would like to draw attention to the singular merits of the finest of all the early-flowering white heaths, Erica mediterranea alba. This is rather more dwarf than the type, an extremely generous producer of long spikes densely furnished with blossoms in a good, clean white, and it is hardy enough for practically anywhere. This beautiful variety is especially valuable inasmuch as it flowers from the end of March to late spring and it is surprising that it has not been more widely taken up as a commercial proposition by those who make it their business to supply cut flowers for various purposes.

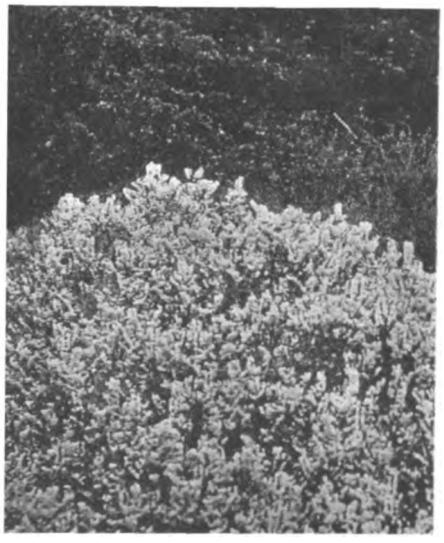
Passing over the tree heaths, the next good white to appear among the dwarfs is E. cinerea alba. This, however, is not always as satisfactory as it might be, despite the darker green of the foliage, which helps to accentuate the pure white bells. We have yet to greet the appearance of a white cinerea which is as large in the flower raceme as a good form of rosea. Even so, this white bell heather is by no means to be despised and it has no rivals during its own season, if we except the varieties pallida and Apple Blossom. These, if not actually pure white, are near that colour in effect and both are excellent.

APPLE REV. W. WILKS.

There are several white forms of E. Tetralix, but none of these is particularly striking. E. t. mollis, with its downy, grey-green foliage, is distinct, the præcox alba is generally earlier than the ordinary white form of the type. This last varies very considerably and a day's search on almost any summer moor where the species abounds will reveal a useful selection. E. Tetralix, as a garden plant, fails in comparison with its allies on account of the fact that its flowers are borne only in terminal heads rather than racemes, but the plant is nevertheless one of remarkable charm.

E. ciliaris alba hardly lives up to the reputation of the fine species to which it belongs, and as for E. vagans, I never considered any of its so-called white forms worth growing until I came across var. Lyonesse, which is a distinct acquisition. Some years ago one got news of a white variety of E. australis, which ought to be a lovely thing, but whether it is in existence I do not know.

So to where I began, to the "White Heather" of Scotland—and many other places if the north will allow. Calluna vulgaris is richer in white forms than any of the preceding and the planter may select from the lists a number of varieties from little shrubs of a few inches high to vars. Hammondii



A BANK OF ERICA MEDITERRANEA ALBA.

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and Serlei, which will make bushes 3ft. and more in height. For general garden use Serlei is, I think, the best, its foliage being "feathered," and of a fresh green, while the enormous heads of pure white blossoms are very handsome. A variety known as alba gracilis is exceedingly pretty and usually under a foot high; alba rigida is another of the smaller kinds with stiff, upright spikes; alba pilosa is a form with a greyish foliage and then we have the common white variety (C. v. var. alba) of the moors, with its pale green foliage and prettily tapered spikes of white. There are many others included in some lists, but most of these are too much alike to claim distinction as garden subjects. Moreover, heaths, like not a few other subjects, are apt to vary very considerably in accordance with the nature of the soil and the treatment they receive under cultivation.—A. T. JOHNSON.

EARLY VEGETABLES

BY EDWIN BECKETT.

IF one delves into a modern reference book that gives details of the various imports made by Great Britain, one cannot help being struck by the enormous figures that represent payment for imported vegetables. While one appreciates the fact that certain other countries have, possibly, more genial climates than our own, and earlier sun power than we are blessed with, yet we cannot overlook the fact that when considering the position of early vegetables on our markets there is a great deal more that could be done in this country. Some have the facilities for attaining this, many have not, but a far greater measure of early supplies could well be attained with little extra trouble and expense.

These notes are not intended to be exhaustive of the subject, but to point lines of action to those who have not fully considered the means and ways, but who would like to take up the good work to their own pleasure and profit.

THE APPARATUS.

Of course the whole work depends on the utilisation of heat: either that of such heat as may be directly obtained from the rays of the sun, in that simplest of apparatus, the cold frame; the stored heat of the sun, such as is yielded from the fermenting material of hot beds and caught by frames placed thereon; or by the employment of again stored sun heat in the form of fuel, when used for heated pits or glasshouses.

THE SUBJECTS.

In one way or another practically all vegetables could thus be brought in season at earlier dates than we have them in the general run of things, some, of course, far more successfully than others, but it is not a necessity in all cases. Who would really want, say, an ordinary cabbage brought along under glass for the pleasure of utilising it a week or two earlier than those grown in the open, therefore we will only consider some of the more important items for this treatment, and from two points of view (*a*) those grown under glass for early use, and (*b*) those raised under glass for planting out with a view to advancing the date at which they may be employed by the culinary department.

Dealing with the latter, and smaller, group first, one finds a few items, such as onions, celery, brussels sprouts, etc., that may be brought along for early supplies in the open by the aid of glass. These are of less consequence for these notes than the other group, though it must be noted that there is a distinct advantage in thus treating the onion crop, for by sowing in gentle heat in January, pricking out when sufficient size, with a view to planting out at an early date, not only are larger specimens obtained, but early maturity and ripening are attained. While the ravages also of the onion fly are practically escaped. Celery sown in moist heat in February will give early plants that can be grown on the flat, and blanched by means of brown paper collars, for early supplies, and can also be obtained at even earlier periods, if planted in pots and frames.

Of the other section we must divide into three classes: the first, those for which a mushroom house or cellar is required; the second, those for which frames, pits and houses are employed; and the third a small group whose season is really prolonged by the use of these structures, in addition to early supplies, through utilising the frames, etc., to protect from frost.

The cellar section comprises, principally, mushrooms, the making of fresh beds monthly for which enables the production of these to be attained all the year round. Chicory, which, commencing in October, may be brought along in successional supplies for salading, all through the winter in the mushroom house or moist cellar. Seakale, which, commencing in pots in the mushroom house or cellar in November, may be obtained through the winter until the supplies from the plants in the open may be arranged for. Rhubarb, which may be started in October from selected crowns, planted in a little soil in the same structures.

The third group of prolonged season vegetables, includes such items as lettuce and endive from August sowings made for winter supplies. These are pricked out into cold frames for the purpose in September, while in October older plants growing in the open are lifted and packed close together in cold frames for winter protection, the blanching of the endive being accomplished by covering sufficient from time to time with a mat to exclude the light. Parsley may also be obtained for winter use by sowing in cold frames, and pricking out when through, at sufficient growing space, while as a catch crop, radishes may be sown from time to time, as required, between the rows of other vegetables growing in frames and pits, such as potatoes, carrots, cauliflowers, beetroots, turnips, etc. Mustard and cress should also be raised throughout the winter, for salading, by frequent sowings in boxes, and raised in the glasshouses.

IMPORTANT VEGETABLES.

The middle and most important group, comprises cauliflowers sown about the second week of September, pricked out in cold frames in October for wintering, ready for early planting in the open. Some of the strongest of these plants may be grown on in cold frames to give earlier yield than their fellows, while for earlier supplies still, plants of suitable forcing varieties raised from seed sown in gentle heat during December and January can be grown well in pots, finishing their growing stage in a cool vinery. Tomatoes for early spring work sown in gentle heat during September, and for winter supplies in August. Carrots which can be sown in a heated brick pit with sufficient depth of good compost during the first week in January, while stump-rooted varieties can be sown at the same time in frames on a hot bed. French beans which may be sown in 8in. pots in November, and raised in a temperature of not more than 65°, while successional sowings can be made until it is time to sow in the open. Asparagus, which can be forced splendidly in frames on a hot bed, strong crowns being selected for the work, and a start made in December. Broad beans, which can be grown in large pots or boxes in a cool vinery, and can also be raised in boxes in cold frames for April planting in the open. Peas are excellent for growing in pots from January sowings in cool houses, and may also be box-raised in February for growing on in these receptacles in the open later on, and finally should be raised in boxes under glass from March sowings for transplanting in the open for early supplies therefrom. Potatoes also force excellently in heated pits, cold frames, and even in large pots or boxes in a cool house. The sets for the latter are planted in December, for the pits in January, and for the cold frames in February, and if sufficient room in such frames, again in March to continue the supplies till those in the open come into use. Turnip sown in cold frames about the middle of February will yield nice early supplies; while globe beet may be similarly raised in frames on a mild hot bed, sowing in March. Mint and tarragon also lend themselves to forcing well in boxes in frames on a mild hot bed, a start being made with this about the end of February. Vegetable marrows sown in heat in February, may either be grown in large pots or planted in frames on a mild hot bed with great success. The lights and frames should be removed entirely when safe from frost, as growth progresses.

(To be continued.)

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THE HOLLAND PARK SHOW

THE Holland Park Show, as usual, has been an unqualified success. Considering the terrible weather of the few days before the Show, all exhibitors deserve great credit, particularly those whose exhibition blooms were grown in the open air. It is, indeed, surprising how few exhibits showed the least sign of being damaged by the gales and rain of the previous few days.

A PORTION OF MESSRS. CARTERS' EXHIBIT.

STOVE & GREENHOUSE PLANTS.

The only exhibit from a private garden was the wonderful group of tropical crotons from Mr. A. P. Brandt of Bletchingly, and this was one of the best in the Show. Time was when these handsome foliage plants were grown in most gardens, but now they are comparatively rare, though the decorative value of the highly coloured foliage is very great. A large number of distinct varieties was represented and each was perfectly grown.

A particularly attractive group was arranged by Messrs. Carter and Co. The centre was made up of a large square containing many lovely plants of Lilium speciosum Melpomene, bordered with the blue-flowered Browallia speciosa major and surrounded by rich green grass. Around this charming centre was disposed smaller circular groups of magnificent plants of Clerodendron fallax, bearing large heads of vivid orange-scarlet flowers, and cut spikes of very good gladioli.

In a prominent position near the centre of the hall, Messrs. Sutton and Sons had a striking ground group of gloxinias, which was particularly interesting owing to the culture of the plants exhibited. These gloxinias were sown as late as last April, and have been grown in cool greenhouses with little artificial heat. Some of the best varieties shown were King George V, Firefly, Duchess of York and Pink Beauty.

Messrs. John Peed and Son are famed for their caladiums, gloxinias and streptocarpus and their exhibit of these glasshouse plants at Holland Park Hall was fully equal to their collections in the past. The caladiums had huge leaves of such delicate transparency that it seemed impossible that such could grow and remain so for months. Rio de Janiero is a typical variety of this type, while General Hamilton combines vivid crimson colour with delicacy of texture, and Marie Moir and Mrs. Robson have fascinating variations of pale green and transparent white on large leaves. An enormous quantity of gloxinias of a splendid strain were shown, but, good as they were, they were surpassed by the streptocarpus. Zonal pelargoniums, which, like the tropical crotons, once were considered indispensable for the summer decoration of the glasshouse, had only one exhibitor, but Mr. R. J. Case brought many trusses of flowers of rich, glowing colours. A selection of his single-flowered varieties would include A. J. Macself, purple; Exquisite, rosy pink; His Majesty, immense scarlet; Lady Warwick, white edged with pink; Somerset Lad, soft salmon; and Mrs. W. A. Cull, white. The double flowered varieties were also well shown.

An imposing collection of tuberous-rooted begonias was staged by Messrs. Blackmore and Langdon. These were all of their well known type which make sturdy plants carrying perfectly double flowers, often larger than a large camellia and of delightfully varied colours. Of the very many sorts time and space permitted the noting of only a few. F. C. Calthorpe seemed to be the best scarlet. Queen of the Belgians and Mrs. H. A. Fox are excellent pinks. Mrs. J. Davidson is rich yellow, while Pavlova is of deep orange. Albatross is pure white and Mrs. F. Cairns is a charming picotee on white ground. Mabel Langdon, a fine soft rose, shows the first appearance of a new break where the flower is cupped like a rose with no appearance of any reflex in the petals.

A GROUP OF GLOXINIAS. AS SHOWN BY MESSRS. SUTTON.

ROSES.

The fact that the Autumn Rose Show was held as recently as last week, did not prevent a number of rose growers from staging large collections of roses of all kinds. Messrs. S. McGredy arranged a collection of good quality blooms to the very best advantage. Many well known varieties such as Betty Uprichard, Golden Emblem, General McArthur, Gwyneth Jones, Lord Charlemont, Doris Trayler, and a beautiful basket of Emma Wright were on this stand. Mr. George Prince had lovely blooms of Los Angeles, Mrs. Henry Morse, Climbing Lady Hillingdon, Sunstar and fruiting sprays of Rosa Moyesii and R. Septipodi.

Roses in perfect condition were exhibited by Messrs. Chaplin Bros., Limited. Beautiful blooms of Emma Wright, pure orange; Mrs. Henry Morse, bright rose; Mrs. Henry Bowles, rosy pink shaded with salmon orange; and K. of K., the popular semi-double scarlet bedding rose, were all well displayed.

Mr. J. Pemberton showed, among his general collection, some new pedigree seedling roses of his own raising. I. Zingari, Pax, Anne, Vanity and The Adjutant, were a few of the best. Betty Uprichard was undoubtedly the most popular rose of the Show. Messrs. D. Prior and Son had beautiful specimens of this variety. Else Poulsen (a new polyantha variety, with frilled salmon-pink petals), Los Angeles, Lady Inchiquin and Golden Emblem, were also noted.

The most outstanding rose shown by Messrs. Alex. Dickson and Sons was Shot Silk, a sweetly scented "Hawlmark" novelty. The colouring was most artistic and the growth free and vigorous. The velvety blooms of Mrs. Oswald Fitzgerald, and the coppery Lady Pirrie, looked very fresh. Mr. Elisha Hicks had hundreds of blooms arranged in pillars. W. F. Dreer, Charles E. Shea, Hoosier Beauty, Lucile Barker and Clovelly

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were some of his best. Messrs. A. and J. Allen showed, among others, Independence Day, Hortulunus Budde, and the fragrant Etoile de Hollande. Delightful blooms of Flame of Fire, a deep orange hybrid tea, were exhibited by Messrs. B. R. Cant and Sons. Henrietta, Dorothy Page Roberts, Isobel and Hoosier Beauty, were also noted.

The roses on the stand of Mr. Frank Cant received much attention. Lovely blooms of Padre, Golden Emblem, Golden Ophelia and Emma Wright, were shown by this grower. Etoile de Hollande was the most fragrant of all the roses shown by Mr. T. P. Edwards. Lady Inchiquin, Mme. Butterfly and Betty Uprichard, were also delightful. Messrs. J. Waterer, Sons and Crisp had a representative collection of some of the best new hybrid teas. Good shaped blooms of Donald McDonald, Isobel and Old Gold, were to be seen.

Mr. T. Robinson showed a collection of roses, including such sorts as Lady Inchiquin, Sovereign, Henrietta and Miss C. E. van Rossem, a well formed and sweetly scented hybrid tea. Mr. J. Mattock displayed some well grown roses and among them were the varieties Mrs. Redford, Captain R. Clark, Rev. Page Roberts, and a pretty bunch of Lulu, with its small pointed buds of salmon pink. Some splendid roses were shown by Messrs. A. Warner and Sons, and Messrs. S. Bide and Sons exhibited their new perpetual-flowering climbing polyantha called Phyllis Bide.

MABEL LANGDON, A NEW BREAK IN BEGONIAS. SHOWN BY MESSRS. BLACKMORE AND LANGDON.

BORDER PLANTS.

Although a great many firms showed Michaelmas daisies freely, they were usually associated with other hardy flowers. Mr. W. Wells, jun., also had excellent vases of kniphofias, rudbeckias, herbaceous phlox and Scabiosa caucasica varieties. These all showed the excellent quality that is always noticeable in Mr. Wells' exhibits. The last named flower was also splendidly shown by Messrs. Isaac House and Sons, who had a delightful variety and at one end of the tabling grouped vivid spikes of Kniphofia Mount Etna.

Adjoining their excellent clematis Messrs. G. Jackman and Sons had a large collection of general border flowers, including sunflowers, liliums, herbaceous phloxes and pyrethrums. In a large floor group Messrs. Bakers, Limited, associated Scabiosa caucasica varieties, rudbeckias, Sidalcea Rosy Gem, Geum Orangeman, of rich colour, and many other flowers with their Michaelmas daisies. Mr. T. Carlile also had a big group of mixed flowers. His late spikes of delphiniums were particularly good, as also were his gaillardias and lupins.

Mr. Amos Perry had the only collection of hardy ferns and this included many fascinating variations in the forms of their fronds. His very large group of border flowers contained attractive mounds of Lilium Henryi, L. longiflorum giganteum, Kniphofia Golden Spur, K. nobilis and K. Corallina, which pleasantly broke the level of the many herbaceous perennials.

Liliums formed a graceful feature of the pleasant group arranged by Messrs. Wm. Cutbush and Sons, who had especially good stems of L. tigrinum and L. speciosum album rising above their large decorative dahlias, pentstemons, rudbeckias and dwarf heathers. On the staging of the Central Gardens Supplies Co. was a fascinating collection of prostrate plants, such as Mentha Requieni and Raoulia australis, which are suitable for planting among crazy paving stones or on the rugged boulders of the rock garden. They also had a good collection of border plants.

The tall rich yellow Rudbeckia Herbstonne was prominently shown by The Chalk Hill Nursery Co. among their Michaelmas daisies, while along the front they showed the interesting Astrantia major, cut sprays of Polygonum campanulatum and other hardy flowers. A goodly collection of general border flowers was contributed by Messrs. J. Cheal and Sons, who used lupins, delphiniums, rudbeckias, Heliopsis gratissima, Senecio Clivorum and other plants very effectively. A good variety of gaillardias, Aconitum Fischeri, herbaceous phlox and kniphofias were staged by Messrs. G. Gibson and Co.

Coreopsis tinctoria, as shown by Messrs. B. Ladhams, Limited, is a valuable rich yellow border plant and they claim that, unlike C. grandiflora, it is a true perennial. The tall lobelias, in great variety, a splendid plant of Cimicifuga simplex, Poterium obtusatum, and some of the dwarf polygonums, were also included.

A splendid collection of herbaceous phlox was shown by Messrs. John Forbes, Limited, who also had pentstemons in admirable variety. Phlox, shown by Messrs. E. F. Fairbairn and Sons, included Sir Douglas Haig, deep orange; Sir D. Beatty, Monarch and Triumph, varying shades of purple. In front of his dahlias Mr. H. Hemsley had a long row of pot plants of various sedums, sempervivums, gasterias and other succulent plants. A pretty little rock garden and pool was made by Miss K. Hopkinson, who planted it effectively. Sidalcea Rosy Gem, colchicums and solidagos were exhibited by Mr. G. A. Miller, while Messrs. Rich and Co. had a neat collection of perennial sunflowers, herbaceous phlox and other flowers, and Messrs. Reamsbotton and Co. had their customary flowers of St. Brigid anemones.

A splendid strain of marigolds, named Ball's variety, arranged with Aster King George and Nepeta heterophyllus, was contributed by Mr. H. Marcham.

Exceptionally good spikes of herbaceous lupins were displayed by Messrs. A. Harkness and Sons. These were mostly distinct named varieties: Flaming Torch, orange fawn, and Mr. Morris, creamy fawn, being especially charming. They also staged Harvester, September Yellow and Ethel among some early-flowering chrysanthemums.

Violets were exhibited by Mr. Baldwin Pinney and Mr. J. J. Kettle.

The Maytham Gardens exhibited border plants. A splendid strain of antirrhinums was shown by Messrs. W. H. Simpson and Sons. Messrs. M. Prichard and Sons showed fine spikes of kniphofias, together with Lilium auratum and Anemone japonica.

MICHAELMAS DAISIES.

From a study of the list of exhibitors no one could have formed any idea of the numbers of asters, or Michaelmas daisies, to be found in the Show. They were to be seen not only in solid masses, as in the displays of Messrs. H. J. Jones, Ernest Ballard, Amos Perry, W. Wells, jun., and T. Bones, but in more or less isolated specimens in almost every other group where anything in the shape of herbaceous or hardy plants was put up. And yet the date of the Show this year was distinctly on the early side for Michaelmas daisies of the Angliæ and Belgii sections. One of our big growers, Mr. H. J. Jones, could only bring fifteen varieties out of the hundred and fifty that he grows at Lewisham. Many of Mr. Ernest Ballard's were not fully out. And one imagines this lateness of the flowers was the reason why we did not see Messrs. Dickson and Robinson's usual group — London, Malvern and Manchester. There you have it.

If, however, it was early for the tall varieties, not so with regard to the lower-growing Amellus section. Slowly but surely they are gaining favour with the gardening public, and since they come into flower, as a rule, before the others, the Show date suited them, and there was a fine muster. Mr. G. G. Whitelegg had two conspicuous masses of King George, which is one of the best. Mr. Wells had the lovely rose Wells' Favourite. Mr. T. Bones, Mr. T. Carlisle and others had that rich dark gem of a flower, Ultramarine. Messrs. William Cutbush and Son had the deep lavender Queen Mary. Mr. G. Reuthe had the pretty narrow-petalled Stella. Messrs. Wilson and Agar had the dark Onward, and so on.

In the taller sections Barr's Pink, an Angliæ, was well shown by Mr. Bones, but if the truth be told there were very few of the Angliæs in the whole hall. In the Belgii section, as usual, Mr. Amos Perry had a good collection; so, too, had Mr. F. G. Wood and the Maytham Gardens, besides those already mentioned. Graceful spikes of Ethel Ballard, Nancy Ballard, and Rachael Ballard, as well as many old and new varieties in all shades were exhibited by the last named. There were very few novelties. Mr. H. J. Jones had a white, named after himself, H. J. Jones. It is expected to have a great future. "It's always there." Mr. Ballard had three —Freedom, Margaret Ballard and a pretty little button of a bloom, Powder Puff. Little Pink Lady was shown by Mr. Wells and the Chalk Hill Nurseries, a dwarf-growing semi-double with rose-pink flowers. It is not quite a novelty, but it is next door to one. Except, of course, that names cannot be changed, it would have been very appropriate to have called Little Boy Blue and Little Pink Lady, General and Mrs. Tom Thumb.

DAHLIAS.

Dahlias and chrysanthemums have suffered through the bad weather of the last few days perhaps more than any other flowers. Wind and torrential rain dashed to the ground not only many choice blooms, but to a certain extent the hopes of the growers also. In spite of this set-back a large number of

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dahlias and a few chrysanthemums were exhibited by various firms. Only a few singles of either flower were to be seen. The great variety of form and the wide range of colour of the countless varieties of the dahlia made the stands some of the most effective and most admired in the Show. Messrs. Dickson and Robinson exhibited some very fine dahlias. Augustinus, a huge lilac rose, and President Wilson, a brilliant scarlet both of the decorative type, the cactus-flowered F. W. Fellows and Edgar S. Jackson, together with Lucius, the attractive orange single, which is very effective for table decoration in artificial light, were the most outstanding among this group. Messrs. Dobbie and Co. had an interesting collection of all kinds. Many of the new varieties of the miniature peony-flowered dahlia were seen. The popularity of this type is increasing rapidly, owing to its usefulness for bedding purposes. Dazzle, brilliant scarlet; Our Annie, shrimp pink; Picture, orange flame, were a few representative of this class. Pompon dahlias, such as Little Jim and Nerissa, as well as Ben Lomond, Feodora, Rosella Amos, all handsome decorative dahlias, were among the first-class exhibit of Messrs. Dobbie and Co.

Messrs. J. Cheal and Co. showed many excellent dahlias, including both the star and mignon types. The best varieties were Dragoon, Orange King, Queenie, Edward Jackson, Luna and a 1925 novelty called Charlwood. Messrs. Carter Page staged a large collection, among which were some varieties not seen on other stands. Berengaria, Emblem, Emma Groot, Johan Mensing, Rona, Christine Prior, and Radium were outstanding. The dahlias shown by Mr. J. Riding were of great size. Good specimens of Pride of Berlin, Noble, Rodney and an excellent 1926 novelty named Reginald Godfrey were exhibited by this grower.

Messrs. J. Stredwick and Co. showed a large number of fine cactus and decorative dahlias, such as Ballet Girl, Jack Hobbs, Henry B. May, F. W. Fellows and Berengaria. Messrs. C. Turner and Co. staged a varied collection which was much admired. Flambeau, brilliant red, was most attractive, and Sonia, Golden King, Marianne, Trixie, Sulphurea and Roy Hay were in good condition. Peach, a delicate rose charm dahlia, Border King, Edgar S. Jackson, My Lady and Tipsy, were noted on the stand of Messrs. W. Treseder, Limited. Beautiful blooms of Rosella Amos, A. Rawlings, Fred. W. Ransome, and Stella were shown by Messrs. D. Prior and Son, Limited. A well staged dahlia group was put up by Mr. H. J. Jones, who included the varieties Jersey Beauty, J. van Citters, Amber King and Mary Copeland, among his collection. Joyce Goddard was a delightful yellow and orange cactus dahlia shown by Messrs. Jarman and Co. Mrs. Alfred Harvey and Mariette, were shown by the above firm. Dahlias were also exhibited by The Hemsley Nurseries, Messrs. J. T. West and Messrs. W. Cutbush and Son.

CHRYSANTHEMUMS

Chrysanthemums were shown by three firms only. The exhibit of Messrs. Keith Luxford and Co. was well arranged and the blooms in excellent condition. In the centre of the group Phœnix, a bright scarlet bronze, made a good contrast against the vivid yellow of New Cranford. Chocolate Soldier, Goldfinder (one of the best early yellows), Mary Mason and September White were much in evidence. Bold groups of Almirante and Pink Delight were shown by Mr. J. W. Forsyth. Mr. William Yandell selected some of the best early varieties, such as September Glory, Royal Salute, Dolores, Hesperus, Salmon Profusion and Horace Martin, for his exhibit of chrysanthemums. A very good selection of violas were shown by the same grower.

GLADIOLI.

Gladioli in the most beautiful colouring were exhibited by several firms. The handsome large-flowered varieties, as well as many new primulinus hybrids were much admired. An excellent collection was staged by Messrs. Austin McAslan and Co., who included some fine new varieties. A brilliant splash of colour was produced by Red Emperor, while Master Wietse, Mahony, Yellow Hammer, Clemenceau and Gipsy Girl formed effective patches of contrasting shades. Some of the primulinus hybrids, such as Orange Brilliant, Salmonea and Atalanta, were very dainty. Interesting hybrids of unique colouring were shown by Messrs. Lowe and Gibson. Rose Ash, Baron J. Hulot, Byron L. Smith, Ulysses, Tragedy, Pride of Lancaster and Field Mouse, together with Sapho, a gladiolus of uncommon colouring, and Kingfisher, a fine seedling, are only a few of the good varieties shown by this well known firm of gladioli hybridists.

The quality and size of the gladioli shown by the Orpington Nurseries were very noticeable. Perfect spikes of Pink Perfection, Blue Peacock, Schwaben, Princeps and Duchess of York were on show. A well arranged exhibit of gladioli was staged by Messrs. R. H. Bath, Limited: Romance, Gallieni, Frau Dr. Hauff, a handsome scarlet, and Par Excel were noted. Excellent groups were also staged by Mr. A. Edwards and Messrs. Bakers. These included a number of well grown and interesting varieties. The former exhibitor was handicapped by the fact that his apparatus for showing was not delivered by the railway company until the second day of the Show.

CLEMATIS.

That the present day varieties of clematis are practically continuous bloomers was fully evident from the large quantity of flowers borne on the excellent plants at the Show, for these were equally as attractive as at mid-summer. Messrs. G. Jackman and Sons, had a great many trained plants. Crimson King was of rich colouring, Lord Neville is a grand medium blue, Duchess of Sutherland is a bright red with a sheen of plum purple, while the Countess de Bouchard was the most free flowering of them all, though the soft pink flowers are not quite so large as the others, but the general effect is excellent.

Many similar varieties were shown by Messrs. L. R. Russell, Limited, who associated their clematis with trained plants of the ornamental vines and bordered the group with heaths, fuchsias and other shrubs. Among their clematis, Marie Boisselot, white; Mr. Kenneth, silvery lavender; Jackmanni superb, a rich purple; Gloire de St. Julien, sparkling French white; and the ever popular Nelly Moser, were very fascinating.

SUCCULENTS.

The South African Railways showed a most interesting exhibit of succulents from the Karroo, collected and shown by Mr. Frith. This is probably the finest collection that has ever been seen in the British Isles. Numbers of euphorbias, cotyledons, crassulas and gasterias were to be seen. There were several specimens of the elephant's foot plant, or Testudinaria elephantipes, which has an extraordinary corm like an elephant's foot. Mr. Frith deserves every credit for this extraordinary exhibit, which has been shown at Wembley throughout the season. He also showed a new species of watsonia with magenta flowers which is so far unnamed. Mr. Sydney Smith also staged a fine exhibit in pots, including miniature gardens planted with tiny succulents which make attractive decorations for those who like something out of the way for house decoration.

SUCCULENTS ON THE EXHIBIT OF THE SOUTH AFRICAN RAILWAYS

CARNATIONS.

Large exhibits of carnations were staged by the principal carnation growers. Mr. C. Engelmann had a striking group, including the newest and best varieties. Mrs. Hamilton Fellows, Red Laddie, Shiela Greer, Improved Ward, Eileen Low, Red Peerless and the

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new glowing cerise Betty Loo were a few of the finest shown.

Perpetual, perpetual border and Allwoodii carnations were exhibited by Messrs. Allwood Brothers—Phœbe (a salmon red self) and Nora, two new varieties, together with Bryan, Barbara and Annwell, were the best of the Allwoodii. In the group of perpetual border carnations Taffata was noticeable, and in the general collection of perpetuals Cameron, Shot Silk, Beauty of Durham, Coral Glow, Edward Allwood, and Chintz were carnations good in colour, shape and form.

Messrs. Stuart Low and Co. had a seedling carnation of unique colouring called Nerablue. It was a very dark carnation, which at a distance looked almost black. Lady Hindlip (an attractive white-ground variety pencilled with red), Improved Mrs. Ives, Duchess of York, Lady Iverforth and White Pearl made effective groups on this stand.

SHRUBS.

As usual, shrubs with berries and autumn colouring were a feature at the Show, and this section undoubtedly proves that many gardens would be improved in the autumn by the inclusion of tinted and berried shrubs. Messrs. Hillier's exhibit was very representative and included many rare species, among them Berberis Sieboldii with sealing-wax red berries and a handsome red stem; and Pyrus Vilmorinii, one of the most graceful of the genus, with scarlet berries. There were numerous maples, crabs, berberis and ornamental vines also to be seen on this stand. Messrs. Cheal staged a number of fine seedling berberis, maples and crabs. The most noticeable plant on their stand was a magnificently coloured Euonymus alatus, which formed a cataract of old rose. Messrs. Fletcher Brothers displayed conifers and berried plants. The young conifers showed particularly good cultivation. Messrs. Cuthbert had a quiet and excellent arrangement of conifers and lilies with a few shrubs with autumn tints. The bronze colour of the leaves of Azalea Hinodegiri was particularly good. Many interesting shrubs and trees were to be seen on Messrs. Wallace's stand. The colour on the seedling mollis azalea Bouquet de Flore showed that the beauty of the azalea is not only during the flowering season. The colour scheme of this stand was particularly effective. Mr. Reuthe, as usual, showed many rare plants in his collection. Among them were Nothofagus fusca and N. Cliffortioides, and Leucodendrum argenteum. Messrs. Charlton staged some fine specimens of fruiting crabs among their collection of trees and shrubs, and also such interesting plants as Corokia virgata and Billardiera longifolia. The Orpington Nurseries showed conifers and a general collection of well grown shrubs, among them several interesting varieties of hibiscus, a useful late-flowering shrub in the south.

Hollamby's Nurseries had a striking exhibit of Pyracantha Lelandii Fireflame, shown in pots, which were exceptionally well berried. These were all raised from cuttings, which is probably the reason for the abundance of berries on such small plants. Mr. Notcutt, as usual at this season of the year, staged a fine exhibit of shrubs with autumn tints or with berries. Berberis, pyrus and cotoneasters were effectively staged. Bays and clipped trees were shown by Messrs. Robert Green, Messrs. Harrods and Mr. John Klinkert.

ALPINES.

Messrs. Rogers staged alpines along with dwarf conifers in pots and a few dwarf succulents. The red and white forms of Menziesia polifolia were noticeable, and also the fine purple Verbena venosa. Messrs. Maxwell and Beale showed a small heath garden with examples of all the attractive autumn-flowering varieties. This firm also staged a rock garden showing plants that flower in the autumn, among them the good scarlet Mimulus cupreus Brilliant and Gentiana Freyniana. Mr. Gavin Jones staged well grown alpines and dwarf conifers in pots. Mr. F. J. Wood showed a fine collection of autumn plants for the rock garden. These were very well arranged, and included such plants as Hypericum reptans, a dwarf St. John's wort that is always worth growing, Polygonum Brunonis, Gentiana sino-ornata and Fuchsia pumila. Mr. Clarence Elliott staged one of his excellent alpine scenes which are always such a feature. Little cyclamens were charmingly placed among rocks along with Gentiana sino-ornata, while colchicums, crocuses and little potentillas popped up out of the moss of an alpine pasture. Messrs. Bowell and Skarrett staged hardy plants including asters and alpines. Sedum spectabile atropurpureum was in fine flower, and several colchicums were also notable.

ORCHIDS.

The only groups of orchids were staged by Messrs. Black and Flory, Messrs. Cowan and Co., and Messrs. Stuart Low and Co.

CATTLEYA AMABILIS ALBA, LOW'S VARIETY (labiata × Warscewiczii).—This showy hybrid carried a spike of three large flowers having broadly developed, pure white sepals and petals, the roundly formed labellum bright purple over its entire frontal area except for a narrow whitish margin. Award of merit. From Messrs. Stuart Low and Co.

CATTLEYA MIMOSA SUPERBA (Venus × triumphans).—A particularly attractive hybrid with a large flower of bright golden yellow colour. The elongated labellum has the broadly developed apical area of purplish ruby colour, the central area with golden venation, and the comparatively small lateral lobes incurved over the whitish column. Award of merit. Exhibited by Messrs. Cowan and Co., Southgate, N.

CATTLEYA TAGUS VAR. KING GEORGE (Rhoda × King George).—A fine addition to the yellow section. The flower has well developed petals set in up-standing style and of bright lemon yellow colour, as are the sepals also; the labellum of intense crimson purple, crisped at the margin, and with obscure veining in the throat. Award of merit. Staged by Messrs. Black and Flory, Slough.

LÆLIO-CATTLEYA PROFUSION VAR. ADRIATIC (L.-C. Serbia × C. Hardyana).—A splendid example of this free-flowering hybrid. The vigorous plant bore a spike of four large flowers of bright rosy mauve colour, the expansive labellum purplish and with a light yellow area on the inner area of each lateral lobe. Award of merit. Shown by Messrs. J. and A. McBean, Cooksbridge, Sussex.

CYPRIPEDIUM FAIRRIEANUM BODNANT VARIETY.—A vigorous plant with two flowers larger than the type, the dorsal sepal being 2ins. in width. It had been unusually well cultivated since the time when it was imported five years ago. Cultural commendation. Exhibited by Lady Aberconway and the Hon. H. D. McLaren, Bodnant, Tal-y-Cafn (gardener, Mr. F. C. Puddle).

FRUIT AND VEGETABLES.

No exhibits of fruit or vegetables were allowed in the main hall at Holland Park; in the gallery only positions for such exhibits were granted. The number of stands in the gallery was very small. Healthy figs fruiting in pots were shown by Messrs. Stuart Low, and good collections of hardy fruit were exhibited by Mr. E. J. Parsons and Studley College, Warwickshire.

A large collection of apples, both dessert and culinary sorts, was exhibited by the Barnham Nurseries.

GRASSES.

Mr. MacDonald again occupied the centre with a grass lawn dotted with little beds of fancy grasses and heather, with a few berberis to give colour. This was a notable exhibit for the clean appearance of the lawn grass.

NEW AND RARE PLANTS.

BEAUFORTIA DECUSSATA.—Although this is an old garden plant, it was introduced from Australia in 1803 and found a place in a fair number of greenhouses, it is now a very rare plant in this country. Its beauty and uncommon appearance attracted considerable admiration. The illustration in the Botanical Magazine fails to do justice to the beauty of the flowers which are very like those of the better known "Bottle Brush Tree," except that they are coloured bright orange, with a suggestion of scarlet. They cluster around the stems of the shrub in the same manner as in a metrosideros (callistemon), and the radiating filaments are longer. The opposite leaves are small, stout and ascending. It is a charming plant for the cool house and it continues decorative for a long time. Award of merit. Shown by the Rev. A. T. Boscawen.

CARNATION SHOT SILK.—This is not everyone's carnation, but will appeal rather to those who like a fancy of uncommon colouring. It is a greenhouse variety and appears to produce the purplish-rose flowers, which have occasional scarlet splashes, very freely. It is slightly fragrant. Award of merit. Shown by Messrs. Allwood Bros.

CHRYSANTHEMUM CRIMSON CIRCLE, C. FIRE CREST, C. MAYFORD WHITE, AND C. PINK DAME.—These four varieties, which received awards of merit, were shown the previous day before the National Chrysanthemum Society (see page viii).

ERICA VAGANS MRS. H. E. MAXWELL.—A compact and bright flowered heath which in general appearance is very like a richer coloured E. carnea. It would be very effective in the rock garden or the heather bed. Shown by Messrs. Maxwell and Beale.

GLOXINIA BEACON.—A gorgeously beautiful variety which is particularly floriferous. The erect flowers are of rich crimson colour which is slightly lighter at the margins and darker in the throat. Award of merit. Shown by Messrs. Sutton and Sons.

G. MAUVE QUEEN.—A handsome bright mauve variety of the same good strain as the above. The flowers have creamy tubes and are a trifle paler on the margins. Award of merit. Shown by Messrs. Sutton and Sons.

KNIPHOFIA W. G. MILLS.—A very vivid red hot poker with a long spike of bright coral flowers. It is a welcome addition to these showy border plants. Award of merit. Shown by Messrs. Bakers, Limited.

MELICYTUS RAMIFLORUS.—A very uncommon evergreen shrub which is said to become about 20ft. high. It has large shining green leaves very like those of Phillyrea Vilmoriniana and has loose clusters of whitish flowers around the branches. The blooms are succeeded by small shining blue berries, carried on relatively long stalks. Award of merit. Shown by the Rev. A. T. Boscawen.

PENTAS PARVIFLORA.—A sub-shrub from western tropical Africa, which bears, when quite dwarf, small heads of flame-coloured flowers, very like those of the bouvardia. It requires warm house treatment. Award of merit. Shown by Mr. Wm. van de Weyer.

SCHIZANDRA RUBRIFLORA.—A Chinese shrub of doubtful hardiness, whose chief interest lies in the hanging clusters of crimson fruits which usually continue for a considerable time. The dark green, ovate-lanceolate leaves are of roughish texture. Award of merit. Shown by the Hon. Vicary Gibbs.

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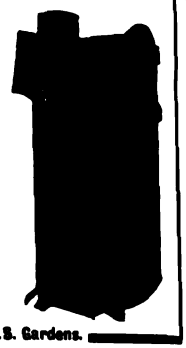

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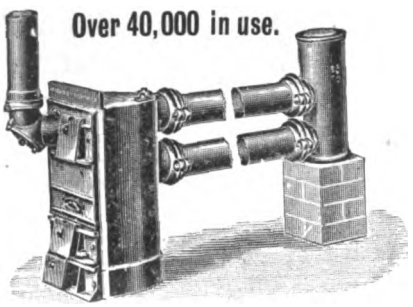

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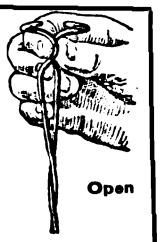

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GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants.

GARDEN RUBBISH.

EXCELLENT in itself is the advice so frequently given that lawn mowings, tree leaves, tops of root vegetables and waste vegetable matter generally should be consigned to a heap to rot down; humus and plant food is thus obtained which, either on heavy clay soil or sandy, gravelly or chalky soils will be of quite considerable value, but is less beneficial for old garden soils which are already well supplied with humus. The introduction of the proprietary article "Adco," is of great help in the direction of making the best use of vegetable waste, and so long as the rubbish is "clean," by which is meant that it is free from the spores or germs of disease, the eggs or pupæ of insect pests, and the seeds of weeds, the "Adco" treated rubbish heap will, for many garden owners, go far toward solving the problem of manure supplies.

There is, however, undoubted need for a word of warning even regarding so apparently simple a matter as the control of the garden rubbish heap. The value of humus has been extolled to such an extent that a widespread impression obtains that anything and everything that is embraced by the comprehensive title "Garden Rubbish," is good for manure, but it is of vital importance to bear in mind that the reproductive organisms of virulent plant diseases, and the eggs, larvæ and pupæ of innumerable insect pests are seldom killed or destroyed by the mere process of decomposition of the vegetable matter which serves as host for the pest or disease. One may see the falling leaves of roses distorted and withered by black spot, mildew and rust; the haulm of potatoes blackened by Phytophthora infestans or disfigured by mosaic; cabbage stumps gnarled and knotted with club root, and even weeds laden with minute eggs of various aphides and yet all this filth and pestilence is allowed either to lie about on the soil or to take up snug quarters on the rubbish heap, where the period of inactivity will be passed and from whence the active life will next season emerge to pursue once more a merciless warfare upon tender young growth of cherished plants.

At the end of the fruit season one may generally find in orchards rotting fruit that fell from the trees in consequence of insects or disease. The fruits decay but the diseases and insects survive. Even the manure from pigs that have eaten diseased fruit, potatoes and other vegetables, has been proved by microscopic inspection to be infested with the germs or spores of the diseases, and many of these dormant organisms appear capable of defying strong fungicides and insecticides. Deliberately to harbour rubbish that is known to be thus swarming with the destructive enemies of plant life is sheer folly; the one and only safe measure to adopt with such filth is to cremate it.

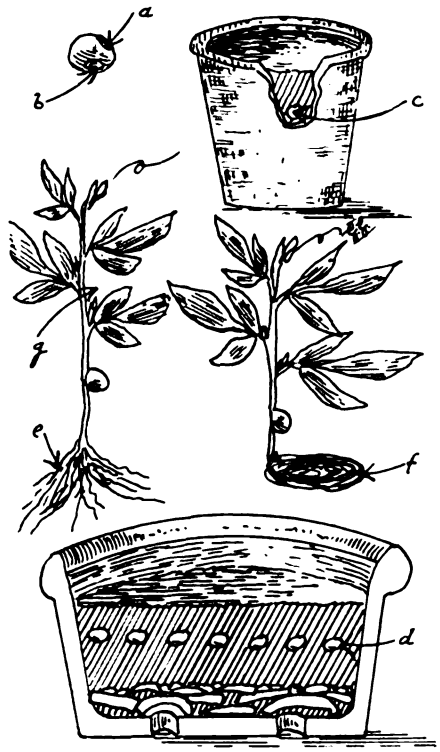
An incinerator as well as a rubbish heap is a necessity in the garden and at the present season of the year the incinerator should be kept busy in the interests of hygiene of the garden and orchard.

There should be little need to fear trouble from the mowings of a healthy lawn, and all leaves and herbage of clean, healthy plants should certainly be "Adcoized" and made profitable, but the additional quantity of manure obtainable from pestilent rubbish will be very dearly bought at the price of another generation of pests or a further outbreak of troublesome disease among one's plants or crops.

The notion is commonly held that a dusting of lime will put all things right, but beneficial as lime undoubtedly is, it is unequal to the entire destruction of dormant garden foes; were it not so we may safely say many gardens where lime is liberally used would have been freed from foes. Fire is the one reliable means of extinction of stubborn enemies of the garden, and although fire consumes the humus forming matter of the rubbish, it leaves ash which is clean and wholesome plant food of high value. More careful control of the rubbish heap and more regular use of the incinerator would go far toward producing a clean bill of health in the average garden.—A. J. MACSELF.

AUTUMN-RAISED SWEET PEAS.

THE flowers are still fresh on some plants growing outside, but the time has come again when we must sow seeds for the earliest crops, under glass and outside, next year. In some gardens sweet peas do not bloom



well after the end of July, in others, my own included, plants raised in September continue to flower outside till the following September, and do better than plants raised from seeds sown in the open ground in spring. It is advisable, however, to sow in the autumn and also in the spring. Some varieties require chipping to ensure germination. This should be done with care; the light-coloured indentation, *a*, must not be cut, as the new shoot grows there, but as shown at *b*. If one seed is sown singly in a pot, sow it as shown at *c*, but if many are sown in a large pot or pan, sow the seeds as shown at *d*. It is advisable to sift the soil through a half-inch mesh sieve, to drain well the large pots and to place the seeds about 1in. apart on the watered soil; then cover with rather more than 1in. of the dry soil. Do all this before the pots are placed in the frame, then you will avoid moistening the dry lime scattered inside the frame to guard against slugs. The resultant plants should be potted singly at an early stage, then the roots readily part from the sifted soil without breaking, shown at *e*. Do not leave the plants too long in the seed pots to become pot or root-bound, as shown at *f*. Take care of the basal side shoots *g*; grow the plants hardily.

SPRING CABBAGE, COLEWORTS AND EARLY CAULIFLOWERS.

COLEWORTS raised from seeds sown in May and transplanted in firm, well manured ground will yield some very useful heads during the autumn and early winter, thus following the summer cabbages. The later crop of plants, resultant from seeds sown in summer-time, will prolong the supply. These crops should now receive a little special attention, not in the way of feeding, as it is the wrong time of the year to force growth of any kind outside, but in the matter of a general cleaning—freeing the ground of weeds and the plants of faded leaves. In the case of the later batch of plants it is advisable to draw up soil to the rows now, burying the stems as much as possible. When frost injures winter greens it is, mostly, that part of the stem just below the basal leaves. The wet weather that sometimes comes in the autumn causes the stems at this point to become sappy and swell considerably, and then a severe frost may, when the thaw occurs, split the stems. The present is a good time to get the cabbages planted out in their permanent quarters. Again, I would like to say do not try to force the growth forward this autumn; nevertheless, it is advisable to apply manure, and I recommend it to be put in not nearer than 7ins. to the surface—from that point downwards. The roots will not come into direct contact with it this year, but early next year, when the plants are needing some support when the hearts are forming. The earliest batch of cauliflower plants should be planted in a cold frame or similar position, so that a light covering can be placed on during severe weather. In the meantime their permanent quarters should be dug and manured.—G. G.

WINTER PROTECTION FOR OUT-DOOR PLANTS.

OF course, I am now referring to plants that are sufficiently hardy to withstand an ordinary winter without any special protection, but which, if exposed to a severe frost, would be badly damaged. I have seen splendid plants of Escallonia macrantha 14ft. high, nicely covering a south wall, cut to the ground-level in a severe winter. If the green boughs of some hardy shrubs or trees had been freely mixed with those of the escallonia the latter would have survived. Jasminum primulinum should always have some protecting material placed over it in very frosty weather. In counties north of London it would be advisable to do this even where the plants are growing under an open verandah. Of course, scrim or tiffany suspended by rings or string loops from nails driven into walls over choice plants on walls will keep out many degrees of frost. I prefer to nail the sheets of scrim to light wooden frames, as the latter are so quickly placed in position; it may be late at night, and it is kept well away from the leaves. In this way violets in open beds may be protected, the sheets of scrim being placed on forked stakes driven into the ground and left 1ft. above it. Iris stylosa may need such protection, also Christmas roses, but the latter, in addition, should be surrounded with dry ashes or coarse sand as well. In the herbaceous border there

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are many subjects, such as the delphinium, that will need the protection of dry ashes against slugs as well as frosts, and materials should be prepared before frosts come.—GEORGE GARNER.

LETTUCES FOR WINTER.

LETTUCES are cultivated throughout the summer months in most gardens, quite often upon the soil thrown up from out of the celery trenches, sometimes between the lines of other vegetable crops, or in any odd corner of the garden, and in these positions the plants grow quite well and good lettuces are obtained. The idea of growing the plants in these places is to utilise all available space in the garden to the best advantage. It may be interesting to state that market men grow their early crops under glass, between the lines of young tomato plants and under these favourable conditions fine lettuces are produced.

Those, however, who wish to have lettuces throughout the winter should have good sized seedlings ready to set out now. These should be planted either in a frame or near to the base of a sunny wall on a sheltered border, where some protection can be given the plants should severe weather prevail. Lettuce plants in frames when once properly established should be well aired, so that surplus damp is expelled as much as possible and the plants kept hardy, while mats or other protective material should be spread over the frame lights in very severe weather.

From an August sowing of a variety called Hardy Green Hammersmith, we set out the seedlings in a frame early in October, and started cutting at the end of January. This variety is stated to be the best for winter use. We have in the past sown Neapolitan —another cabbage variety—and Hardy Green Hammersmith at the end of May and noticed in September that Hardy Green Hammersmith or what were left of them had pushed up their flower stems, while plants of Neapolitan, both those which had been pricked off and those which were allowed to grow in the seed bed, showed no sign of flower stems at the same period, and both varieties were grown on the same border. The conclusion is that Hardy Green Hammersmith is a quicker maturing kind, and so more suitable for growing in winter, when climatic conditions are not so favourable to rapid growth.—DAVID ARMSTRONG, *Midlothian*.

LILIUMS FROM SEED.

LILIES are among the most beautiful of bulbous plants, and are so easily grown from bulbs, that it is hardly surprising that but few people turn their attention to raising them from seeds. They can be so raised without difficulty, however, and some nurserymen offer seeds of quite a large number of both species and hybrids. Lilies have flowered in less than two years from the time of sowing the seeds, and I have seen L. formosanum, an alpine variety of philippinense, collected by Mr. W. R. Price in Formosa, producing flowers in the seed pan. This lily is somewhat similar in shape to L. longiflorum, white in colour, and possesses a good constitution. A fine lily of Chinese origin is L. regale, the centre of the flower is flushed with yellow shading to white at the outer edges. The colour of the superb L. sulphureum is described in its name, and the hybrid L. sulphur-gale, is intermediate between its parents, L. sulphureum and L. regale. The orange L. Henryi, the vivid orange red L. Willmottæ, the purple L. Martagon with its white variety album, and others have all been successfully raised from seeds. The period that must elapse before the seedlings attain flowering size will largely depend upon the treatment afforded, but as a rule three years is about the time for flower spikes to appear in any quantity. Seeds may be sown either in autumn or in the spring, and I have found a cold brick pit the best place to raise the seedlings. Three or four inches of light soil is placed in the pit, and the seeds are sown thinly and evenly over the surface. Just cover the seeds with sandy soil, and care must be taken to prevent the compost becoming very wet or the seeds will decay. Until germination is effected the lights can be covered with a thin canvas or similar material. When the seedlings have made a third or fourth leaf, they can be pricked off in a similar pit or frame, and here they will remain for some months to form nice sized bulbs. Where only a few are grown, the seeds can be sown in boxes, and germinated in a cool greenhouse, while a sheltered border outside is also suitable, but here the seed beds are better if protected with hand lights until the seedlings are well advanced.—T. W. B., *Chepstow*.

MANURES FOR THE GARDEN.

AT this season of the year the farmer turns his thoughts, generally, to the matter of ploughing and manuring his land. So, too, will the wise gardener. For nearly a whole year he has been taking crops from the garden; these cannot be obtained without absorbing nutriment from the soil, and before the latter is again cropped its larder must be replenished. Basic slag can be applied in the autumn with advantage; indeed, it is the best time for its application, also for lime, etc., and animal manures where heavy soils obtain. But I know how difficult it is for many owners of gardens to obtain animal or farmyard manure and, as most soils require humus in them, what is to be done? What substitute can be used? I have to buy all my manure, farmyard and artificial; but as I am not able to procure sufficient from the farmyard, I use Wakeley's Hop Manure, and with excellent results too. I generally use it from autumn to March, and throughout the summer in smaller quantities and for mixing with composts for potting. At the end of a year I can find the manure in a well rotted state in the soil, and the latter crumbles nicely around it. I have used it as a surface mulch, but found it acted best in this way when just lightly covered with ordinary soil to keep it in position as it dries in the sun. For onions, leeks, celery, etc., it should be buried well below the roots when planted. All organic manures should be kept under cover during the winter. Sheep, goat and poultry manures should be added to the soil in a dry state in spring.—HAMPSHIRE.

CORRESPONDENCE

ALSTRŒMERIA AURANTIACA.

SIR,—In reference to your correspondent under "Interesting Answers," in your issue of September 19th (page 534), with regard to Alstrœmeria aurantiaca, I had exactly the same experience. I bought roots from thoroughly reliable nurserymen, but they did no good and very soon died. I then purchased packets of seeds of three varieties and sowed them in a 6in. pot in a warm greenhouse in January. The plants were 4ins. or 5ins. high in June and the pots full of roots and I planted them straight into the border. They all flowered a little the first year and ever since have gone right ahead, and the only difficulty I have is to keep them in bounds. I have one clump under pine trees about 10ft. to 12ft. across and another clump under a north wall, where the plants have come up on the other side of the path.

If your correspondent will raise the plants from seed he will have no difficulty, but they usually greatly resent root disturbance.—GEO. D. DAY, *Hunts*.

COLOUR NOMENCLATURE.

SIR,—What an excellent and much needed article was yours on "Colour Nomenclature," and how wise its suggestion of some twenty-four names. There are colour charts, both French and American, and books like Mrs. Francis King's "Well Considered Garden," use them; but they are somewhat elaborate, and for ordinary usage something simpler, but well defined, would be gratefully received. "Gentian" blue and primrose are clear and unmistakable—surely more can be found like these. I have heard Iris tectorum called both "China" and "Delft" blue—both obviously searching to render a definite impression. But "salmon"!—sometimes it is the colour of raw tomato and again a washed-out, nondescript, pinkish-yellow. And "mauve"! what is the standard flower of "mauve"?

I should say *magenta* was definite, but not half enough used; so many things described as "old rose," "glowing pink," "soft mauve," etc., are plain "magenta"—indeed, one sometimes feels in desperation that it is the colour of nature, to which all things return. If "old rose" means anything, it should mean the very soft, almost ashen colour seen in Persian carpets, not something garish akin to magenta. What anarchy rules in the descriptions of yellow roses! What would you call Golden Emblem, Sovereign, Lady Roundway? I use "golden yellow" to distinguish them from "pure" or "daffodil" yellow, such as Souv. de Claudius Pernet, Golden Ophelia or Constance, but obviously there is need of order here, as well as in dividing pinks like Mme. Abel Chatenay, Earl of Warwick, Dr. Joseph Drew, which are warm and soft, from pure and "cold" pinks like Lady Ashtown, Radiance or Premier. Iris especially lend themselves to impressions different from catalogue descriptions, which, while accurately giving the colour of falls and standards, often fail to give the *general effect*, so necessary when grouping different ones together. One is driven to going around a garden with a note book and making one's own classifications Troost, Jussien, Œnid de Valery Mayet, Khamsin, go together; Loute, Sceptra, Opera also—and so on, renouncing any attempt to describe them individually. Eduard Michel is called "rich petunia violet," and Caprice "soft pink-violet," yet I should call both magenta.

Who could put order into red tulips, and set apart those which are really red, with no tinge of blue, like King Harold or Isis, from those which are half-blue or half-pink, like van Poortoliet or Farncombe Sanders? Reds that "blue," pinks that "magenta," yellows that "lemon," all cry for clear divisions. May THE GARDEN succeed in giving them one.

This is, of course, the cry of the very plain amateur gardeners; the great ones do not need these aids, but the makers of catalogues do.—AN ITALIAN READER.

FREESIA CHAPMANII.

SIR,—My attention has just been called to some recent notes from Mr. van Tubergen, in which he questions the origin of the above as having been derived from F. aurea. I

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LOUDON'S PLANTING

JOHN CLAUDIUS LOUDON, who was born in 1783, was rather a famous person in the horticultural world. He was probably the first man to be designated a writer on horticultural subjects. His best known works were the "Encyclopedia of Gardening," which was first published in 1822 and ran through several editions, and his "Arboretum et Fructicetum Britannicum," which was started in 1838 in monthly parts. The latter was a financial failure, and unfortunately so, for Sir W. J. Hooker said of it: "There is not a naturalist in Europe who could have executed the task with anything like the talent and accuracy displayed by Mr. Loudon." Both of these works, although moderately useful even to-day, are so out of date that they are more collectors' books than works of reference for the amateur horticulturist.

The object of this note is to bring out of the obscurity into which it has fallen a little book which nowadays is unknown. Few of those who are acquainted with it realise that it was written by Loudon, for it was issued anonymously. It was a volume of the Library of Useful Knowledge, and is called "Useful and Ornamental Planting," with an index published under the superintendence of the Society for the Diffusion of Useful Knowledge, London: Baldwin and Craddock, Paternoster-Row, MDCCCXXXII, 8vo, 151 pages. Even to-day it is an extremely useful little book, crammed full of information difficult to obtain elsewhere. In its day it deserved far greater credit than it obtained, for anyone might have been proud to cram so much useful information into 150 pages. Here is a sample from one of the opening paragraphs which is just as applicable now as it was ninety-three years ago: "Many thousands of acres now unprofitable to the owners and to the community, might, by judicious planting, be reclaimed, and rendered highly productive; and it may be safely affirmed, that there is hardly a spot of waste land in the kingdom so barren, which by the exercise of skill in planting, and selection of proper species of forest-trees adapted to the soil and exposure, might not be covered with profitable plantations."

The small section which deals with the structure and botany of the plant is the most out-of-date portion of the book and is almost useless. When Loudon comes to the different methods of raising fruit trees, he is on surer ground, and except that he gives first place to the oak, no doubt owing to its use in shipbuilding, there is much useful information to be gained on nurseries, layering, cuttings and so on. He then goes on to discuss the advantages and disadvantages of the four main methods of planting: first, slit-planting; second, holing or pitting; third, trench-planting; fourth, furrow-planting. The next chapter is devoted to soils, descriptions of the various types and the trees which are best suited to each type. Chapter VI deals with the culture of plantations, pruning, thinning and so on. Then follows one of the most interesting sections of the entire book, a note on the progressive increase of size or produce of wood in different species of forest trees with examples of remarkable trees. The various sizes are exceedingly interesting for purposes of comparison with specimen trees of the present day. Following are various lists and descriptions of forest trees, and the volume ends with a chapter on ornamental planting.

Among the lists is one giving the names of products of plantations. Probably most of these names are known to old woodmen, but many are strangers to me. Here are a few samples: bavins, smart-hoops, cooper's ware, edders, moot, shakes, gears or low faggots.

There are many interesting notes given in the list of forest trees and, indeed, the lists themselves are astonishing as a guide to the immense number of trees that were then obtainable. For instance, he mentions thirty-one species of ash, ten of alder, seventy-one of oak and so on. Doubtless many of these no longer exist as species, but a sufficient number are left to show what an extensive list there was to select from in the eighteen-thirties.

I shall conclude with quoting from a paragraph at the end of the book: "We have ourselves removed large trees without failure and have seen reason to conclude, that notwithstanding the careful preparation of the tree, the preservation of its roots and rootlets, and the careful adaptation of the soil, the success of the effort, and the immediate growth of the tree, will depend much upon its removal at the beginning of winter, and upon copious watering early in March, to be continued at least every fortnight during the first summer after transplantation."

There must be dozens of this little book to be obtained in second-hand book shops for a very few shillings, and very useful it is.

E. H. M. C.

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

THE IMPORTANCE OF THE MODERN RAMBLER, by Walter Easlea.

PLANNING AND PLANTING A SMALL ROSE GARDEN, by George Dillistone.

THE POLYANTHA POMPON ROSES, by White Lady.

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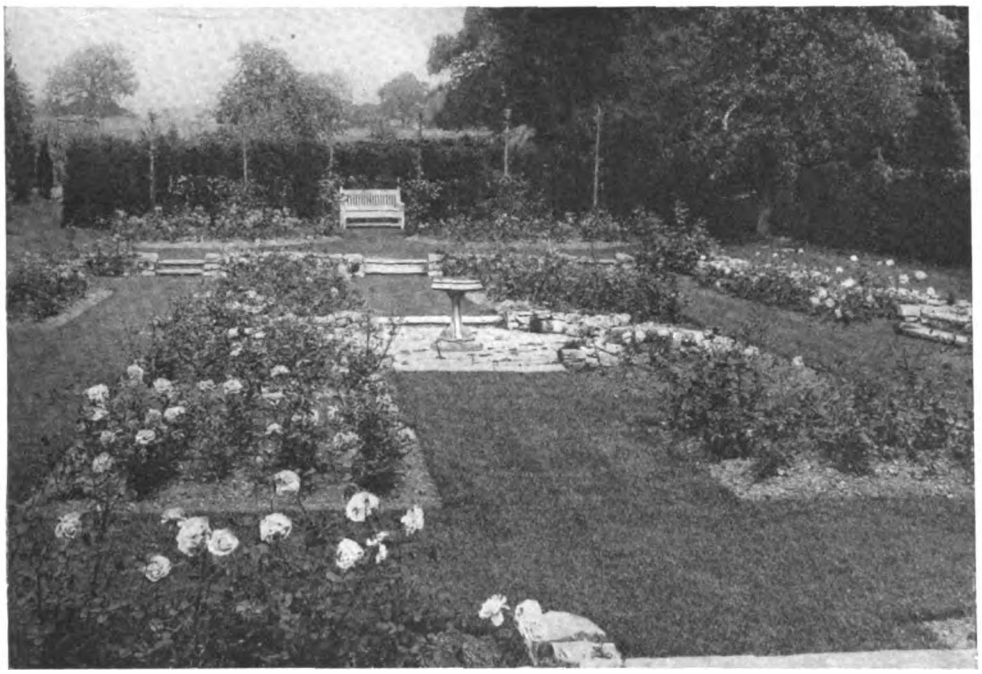
THE MAKING OF A ROSE GARDEN

BY HERBERT L. WETTERN.

THE orderly planning and development of a rose garden, as with so many other schemes of construction, is at the outset hedged about by certain limitations and restrictions, which tend to define its ultimate form and, despite the keenness and enthusiasm of the potential rose grower, it may not be possible for him to pick and chose with absolute freedom the site of his garden, its situation, aspect, or area; or, most important of all, he may have to accept, or make some compromise with the soil or sub-soil available for his purpose.



A TYPICAL ROSE GARDEN OF GOOD DESIGN.

Were it possible to stake out one's claim with regard only to the perfect rose garden and without regard to cost, there would, indeed, be no limit to the realisation of the hopes and ambitions of thousands of rose growers.

This, however, is not the true problem before us, which is more commonly the making of a garden within a garden, with all that that implies as to boundaries and restriction of site, sub-soil and other considerations, and to this aspect of the problem I will address myself.

I will therefore talk of the making of a rose garden to those who have already a garden wholly or partly laid out, but wherein roses have, as yet, no place. As the outcome in general measure of a better understanding and appreciation brought about by propaganda, the use of roses mixed up with shrubs and garden plants in large borders is fast disappearing.

It seems at last to be recognised that the rose is entitled to a setting and environment entirely its own, either in beds by themselves, or so detached and featured as pillars, standards and pergolas that their full beauty of colour, setting and habit can receive the fullest appreciation.

Indeed, success leading to success, we find that distinct and separate varieties are appreciated more by being grown in separate beds.

Dealing then first with an old garden, wherein we desire to establish and form a rose garden, my first advice is to take the roses out of the shrubbery beds, and make fresh beds entirely devoted to roses, if possible keeping one variety to each bed.

SOILS.

The question of soil and sub-soil is, perhaps, by far the most vital factor. Admittedly the finest soil for roses is a good, rich loam, preferably with a clay sub-soil, and this undoubtedly forms one of the great secrets of the successful rose growing at Colchester. Gravels and sands are not so good, but they can be made good by deep trenching and a liberal admixture of manure. Chalk soil is about the poorest, although, if one is domiciled upon it, it need not be a deterrent, for it can be saturated with natural and artificial manures, on which the roses will thrive, while the chalk (lime) sub-soil will, by its porosity and nature, prevent the soil from becoming sour.

Such was our experience at Sanderstead, Surrey, where although the soil was less than 18ins. thick above the solid chalk rock, we were able to grow some of the finest exhibition roses. When bringing in fresh soil to make up the beds, be careful of "importing" soil of any description. Our experience in digging beds out in poor chalk soil and substituting a clay base, was a costly failure. In fact, we were fighting against nature, and nature won.

In rose growing, as in agriculture, the law of cropping, or the rotation of crops, applies equally effectively. After roses have been grown in a bed for some years, and a change is desired, entirely fresh soil should be used, as the old will be exhausted and denaturised so far as the latent qualities essential to rose culture are concerned.

Rose nurserymen, growing acres of roses, never plant their briars on the same soil, except at long intervals, and recommend onions as a change crop!

SITUATION.

The best situation and surroundings for a rose garden are where the beds are freely exposed to light and air, but yet are protected against severe winds. Good drainage is, of course, a *sine quâ non*—what rose can grow with feet continually wet and cold?

Shelter from the south-west, our prevalent wind in the south of England, has been recommended, especially for tea roses, but it is not our experience here at Oxted, and we prefer protection from the stormy blasts of the north and north-east winds.

In designing the rose beds they must, in a limited area, be more or less geometrical. For climbers, keep pergolas and arches on the sides of the garden—not in the centre—and bear in mind that the idea of a pergola or rose walk must be to lead from somewhere to somewhere, to give a vista or perspective, and by its nature, while essentially a definite feature, should yet give a sense of distance and space.

The centre, then, would be left open, and cut into beds of various shapes and sizes. Grass paths are infinitely to be preferred to gravel or stone, even though they mean a little more work in upkeep.

The question of selection of the best roses has been so often broached that one hardly likes to recommend, especially knowing that growths vary according to soil, situation, treatment and other considerations. A plebiscite on this subject could not, therefore, even be conclusive, and one can but name the best roses according to one's own experience and individual preference.

Here, on our sandy loam I name:

REDS.—General McArthur, Red Letter Day, Covent Garden and Hawlmark Crimson.

WHITES.—Mrs. Herbert Stevens (T), and Molly Sharman Crawford (T).

PINKS.—Betty Uprichard, Mme. Léon Pain, Ophelia and Lady Pirrie.

YELLOWS.—Mrs. Wemyss Quin, Lady Hillingdon (T), Mabel Morse and Golden Emblem.

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The tea roses should be avoided in the case of chalky soils, while on heavy soils roses such as Lieutenant Chauré, Hugh Dickson, etc., will do better.

Experientia docet—one lives one's whole life in learning, and after twenty years of rose growing we still profit by experience, and continually alter our plans and ideas. The advent of new roses is not so much the cause of alterations as might be expected, for most of the good, old-established roses still take a lot of beating, and it is only when outstanding novelties (few and far between though they are) such as Betty Uprichard are put on the market, that an old favourite has to be scrapped to make way for something better.

To the enthusiast thirsting for information as to the growing of roses, and the varieties to be preferred, my advice is to join the R.H.S. and actually study the roses at the Trial Garden at Wisley, Surrey. "Seeing is believing," and one can learn far more in a few hours in that garden than by studying books and catalogues, with long lists of confusing descriptions.

THE WREXHAM DELPHINIUMS

NO better advertisement for the decorative possibilities of the delphinium could possibly be imagined than the great nursery drifts of various first-rate sorts of delphiniums which are to be seen during July and August at Solihull, that noteworthy suburb of Birmingham, and surely no one who has ever seen them can have any doubt, henceforward, that these giant perennial larkspurs are pre-eminently plants for massing.

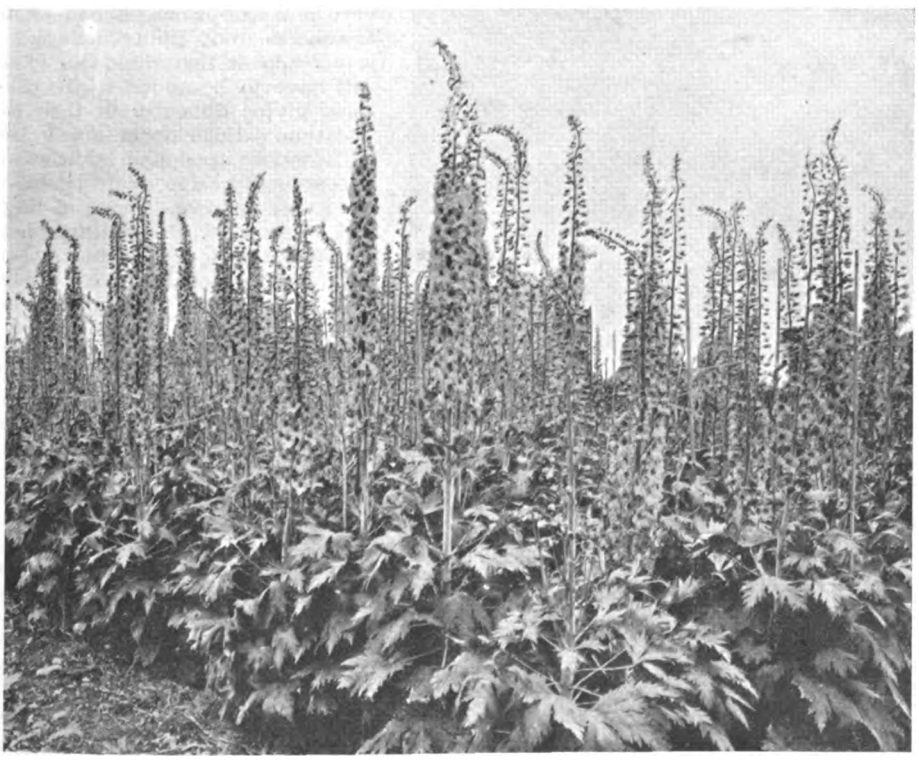
Two visits, with an interval of ten days between, sufficed to inspect almost every variety grown at somewhere near its best, but the would-be planter will do well to bear in mind that some varieties produce their main show of blossom appreciably earlier than others. This is a matter of real importance where colour harmonies are being worked out. It is, in fact, good policy for this particular purpose to visit a first-rate collection when the plants are in flower and to select sorts which are at the time in a similar stage of development. It should be tolerably simple too, to thus get any desired combinations of colouring, which, from a catalogue, is by no means easy, for descriptions such as "blue and purple," give little indication of the general colour effect as seen from a little distance; so much depends upon the exact proportioning of the colours in the blossom.

The outstanding feature of a really splendid collection is the group of "Wrexham" sorts with their immense and perfect spires of loosely-arranged blossoms, but the older stock-flowered forms are also largely grown, and their comparative value can easily be judged. At the time of my first visit a number of immense spikes of the soft blue and mid-mauve Advancement formed, no doubt, the *pièce de résistance*. The plants were all between 6ft. and 6ft. 6ins. tall, of which quite 3½ft. represented the spike of blossom, some 8ins. through at the base and tapering almost to a point, with the individual blossoms up to 2½ins. across. Many dozens of flowers were fully expanded at once on each spike, though not in the least bit crowded. Advancement is a good name for the variety, and the colouring is very pleasing, though by no means an unusual one for the flower.

Quantities of the blue-purple, white-eyed The Bishop and of Coquette, with conspicuous patches of gentian blue on the reddish violet blossoms, served to demonstrate the garden value of two of the very best of recent introductions, while Novelty, gentian blue, toned purple and with a conspicuous dark "bee," and a symphony of soft blues and lilacs called Lovely, were, each in its own way, irresistible.

Others specially noted on this occasion were Theodora, a tall, bright blue of Belladonna strain; Orpheus, of almost lilac pink colouring; the nearly indigo Smoke of War; the pinkish mauve Le Danube, and the now well known clear pale blue Mrs. Townley Parker. Lord Curzon, lavender, also appealed, and, of the older sorts, King Bladud and The Alake have still, apparently, power to compel a pause for admiration.

Perhaps the most telling bits of colour noted on this occasion were provided by these well named varieties, Blue Bird and Evening. The former, though a fairly tall grower and very free-flowering, does not throw spikes comparable in size with those of Mrs. Townley Parker—leaving aside the immense spires of the Wrexham sorts—but the colouring, a really brilliant gentian blue makes it quite invaluable for the border.



A FINE BED OF COQUETTE, ONE OF BEST OF RECENT INTRODUCTION,

THE HELIO-MAUVE VARIETY JOY BELLS.

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Seen at midday the variety Evening might be described by the usual " tones of blue and purple," but as, long before sunset, the violet rays of the sunlight begin to fail, the spikes take on a tone of royal purple unmatched in any other flower known to the writer. As the spike is a really good one and the daylight colouring of quite average value, this is a very suitable variety for any herbaceous border, but it will make its main appeal to those who keep a special corner for the many flowers which reserve their most attractive aspect for eventide.

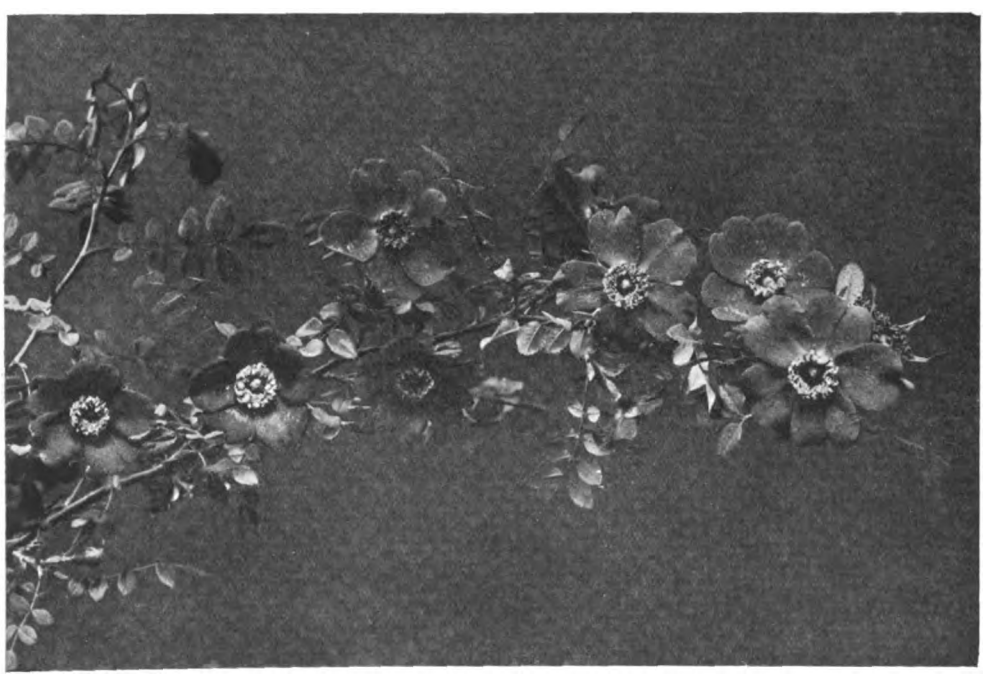
On my second visit I found many of the varieties already noted still in the best of condition, though naturally many fine spikes had been cut for exhibition purposes. The stately Monarch of Wales was now nearing its best and the very numerous plants of this white-eyed giant were a picture worth going far to see. The general colouring is mauve, set against a background of gentian blue. Equally attractive and certainly more unusual in colouring, is Violet Queen, of very violet tone, also contrasted with deep gentian blue—a very handsome and distinct variety. The helio-mauve Joy Bells appropriately enough introduced a calm battalion of Happy Thoughts. Queen Mauve, of pale, clear mauve colouring, with a backing of soft blue, is already an established favourite with those ladies who have made her acquaintance.

Perfectly formed spikes of almost clear pink—clear pink it is towards nightfall—each petal neatly tipped with Belladonna blue and centred with a khaki bee, represented the variety Venus, which will not be on offer this season. The flowers, though not gigantic, are of perfect form and finish, and their arrangement on the rather narrow spire is exquisite. On the whole I believe I covet a stock of this variety more than any other the firm has to show, though they have some really splendid sorts coming on of their own raising. It is useless to describe them, as they are still under number. The quality of the seedlings each year is such that the selection of half a dozen or so of the best and most distinct must be a very trying and unenviable task. SUSSEX.

SOME CHINESE SHRUBS & TREES of our GARDENS

(*Concluded from page 552.*)

AMONG hardy evergreen trees and shrubs grown for foliage effect, Magnolia Delavayi stands almost unrivalled, with its leathery leaves, which attain up to rather over 1ft. in length and 6ins. to 8ins. wide. It forms a most effective subject when grown as a single specimen upon a lawn, although it would probably display its creamy white flowers earlier if planted against a warm wall in a position similar to that in which is usual to plant M. grandiflora. It should be so planted that it is sheltered from the prevailing winds, as its large, handsome leaves are liable to be torn.



ROSA MOYESII, A HANDSOME WILD ROSE FROM THE EAST.

The well known M. conspicua, the yulan or lily tree, is a deciduous representative from China, where it has long been cultivated.

The osmanthus is a genus of evergreen shrubs bearing a rather close resemblance to the holly. The one that is becoming the most widely planted is Osmanthus Delavayi, a charming shrub with small, dark green leaves, producing in March and April clusters of sweetly scented white jessamine-like flowers. As with many early-flowering shrubs, its great disadvantage is its liability when in full flower to become damaged by spring frosts. One occasionally sees a specimen at this season of the year whose petals have been badly marred and mottled by the action of frost. The difficulty regarding any early-flowering subject liable to damage in this way may best be overcome by planting in a westerly border, thus avoiding the rays of the early morning sun and allowing the thaw to take place gradually.

There are two poplars, introduced by Wilson from China, which are both distinct and handsome and of outstanding beauty, Populus lasiocarpa and P. Wilsoni. Both are comparatively rare, and will probably remain so for some long time to come owing to the difficulty they give in their propagation. This genus, with but very few exceptions, is one of the easiest to root from cuttings. It would appear that these two species will have to be added to the list of those giving difficulty in their propagation. Both form small trees with widely spreading branches and exceptionally large ovate leaves, up to 10ins. or even more in length and 8ins. wide. P. lasiocarpa has a prominent red petiole and mid-rib. P. Wilsoni differs in the colour, texture and shape of the leaf, and also by the purplish green, glabrous branchlets. The leaf of the latter is not so cordate at its base as in the former case.

The vastness of the rhododendron genus makes it impossible to select even some two or three species and describe them as being the most noteworthy of the genus. This family probably contains the greatest number of our most beautiful flowering trees and shrubs hardy in this country. The number of Asiatic species is now very nearly a thousand which should provide a sufficient selection for any purpose and situation.

EASTERN ROSES.

It would occupy many pages to describe adequately the Chinese members of the genus Rosa. Rosa Hugonis is one of the most graceful and beautiful, with its long, arching branches covered with pale yellow flowers, which are about 2½ins. in diameter. R. omeiensis is a vigorous shrub bearing small white flowers in profusion; the stems are thickly set with finely pointed thorns. The bright red, elongated fruits borne upon fleshy yellow stalks are very showy. Wilson, in speaking of this rose, says it is common on the mountains of western China at altitudes of 6,000ft. to 11,000ft. above sea level, and sometimes grows 20ft. tall and forms great thickets. The name is derived from one of the sacred mountains of China, Mount Omi, where it is common. The variety pteracantha differs from the type in its large red, translucent spines, which are a curious attraction of this plant. They more resemble the fins of a fish than the thorns of a rose.

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R. Moyesii, with its large, single, crimson flowers, followed in the autumn by elongated pear-shaped fruits of 1½ins. or more long, is a magnificent addition to our rose gardens.

R. Willmottiæ is equally beautiful when covered with its delicate lilac blossoms. Perhaps the finest pink-flowered species is R. macrophylla or R. setipoda.

Sorbus munda subarachnoidea forms a very handsome small tree, and may perhaps best be likened to a white-fruited rowan or mountain ash. Its compound fern-like leaves and its corymbose clusters of pearl white fruits are the outstanding features of this rare and attractive plant. The comparatively juvenile state at which it attains perfection is a useful and uncommon attribute. Here a young specimen still less than 6ft. high has flowered and fruited profusely for the past two years.

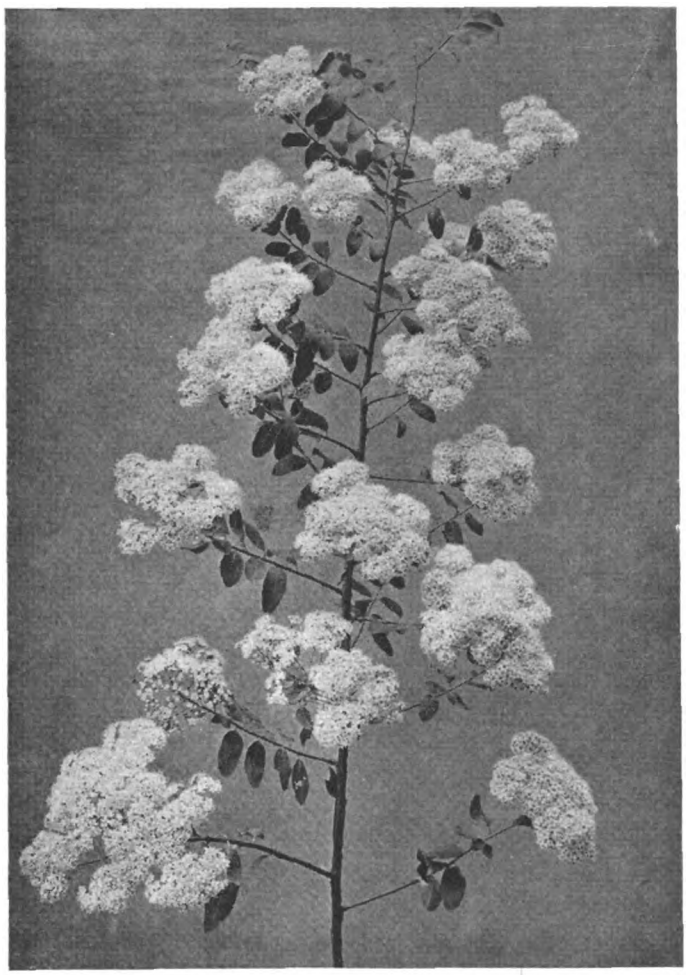
The genus spiræa is a very large one, embracing both herbaceous and woody species. The latter vary from small alpines of a few inches high to shrubs of tree-like dimensions. Although of wide distribution, there is no woody species native to this country. Spiræa arborea (Sorbaria arborea) in its several forms is one of China's giant species, attaining 30ft. in height; it is most closely related to the better known S. Lindleyana. It bears paniculate clusters of white flowers, the inflorescence being often 18ins. or more across; its large compound leaves are also strikingly handsome.

S. Veitchii is one of the latest of the shrubby species to flower. It is a shrub from 8ft. to 10ft. high, with numerous stems and gracefully arching branches, which by the middle of July are covered with broad, white, flower clusters raised on erect stems.

A glance at Salix magnifica would at once give a casual observer the impression that they were looking at a magnolia or any other genus rather than a willow. This, however, is not to be wondered at, since Wilson told me that when he first saw this plant wild in China he himself thought that it was a magnolia and it was not until he noticed the drooping catkins that he realised he had discovered a willow, the appearance of which differs in an extraordinary manner from any other of the genus. Leaves may frequently be seen up to 8ins. or even 10ins. long and half as wide.

Stranvæsia undulata, allied to the photinias, is a most useful evergreen, mainly on account of the profusion of its fruits in the autumn. There appear to be three forms of this species, one of slow spreading, somewhat prostrate habit of growth, and another of more rapid and fastigiate form. The leaves of the former are usually more undulate in margin. Both bear clusters of fruit of a bright scarlet colour. The third form differs in the colour of the fruit, which varies from a pale greenish lemon yellow to a good shade of orange.

The genus syringa, commonly known as lilac, has several very fine species native to China. Syringa reflexa, with its drooping panicles of rose-coloured flowers, and S. Wilsoni, with its less dense, non-pendulous panicles of similar coloured flowers, are two of the best. S. Giraldi and S. pinnatifolia are always the first lilacs to open. The former bears lilac-coloured flowers and the latter white flowers with compound leaves not unlike those of a mountain ash.



THE BROAD WHITE FLOWER CLUSTERS OF SPIRÆA VEITCHII.

CHINESE VIBURNUMS.

Chinese viburnums are among the most ornamental of our flowering shrubs. As a genus viburnum possesses great variety, and many of the species have the most esteemed plant qualities—hardiness, conspicuousness and fragrance of flowers, with distinct foliage and coloured fruits. With possibly the one exception of V. alnifolium all the species thrive on chalky soils. V. Carlesii, with its sweetly scented flowers opening before the foliage, is perhaps at present the most popular of the Chinese species. Very similar to this when in flower is V. fragrans, of which the late Reginald Farrer wrote "it may be seen in every yard of temple and palace and humblest cottage court in Kansu and Thibet." This is one of the earliest of shrubs both to flower and come into leaf. V. Henryi, with its narrow oval leaves up to 5ins. in length, when covered with fruit, which is at first red, ultimately black, is an attractive evergreen.

Another distinct evergreen is V. rhytidophyllum, with its large dark green leaves, whitish on the underside, and with fruit similar in colour to that of V. Henryi. The disadvantage of this otherwise remarkable shrub is in its appearance during rough weather. Both during frost and wind its leaves hang down in such a manner as to appear wilted. When given favourable conditions, that is, a sheltered situation, it is certainly one of the most noble foliage plants which thrive on chalk soils.

V. Davidii is another evergreen species, but of dwarfer habit than the above mentioned. Its great acquisition is its turquoise blue fruits.

H. G. HILLIER.

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NOTES OF THE WEEK

A NOTE ON SOME MOUNTAIN FLAXES.

I DO not know why Linum tenuifolium is described in an up-to-date handbook as a rare new species, as it is widespread throughout the Alps, and its identity as a distinct species was never in question. Probably it has not come into general cultivation on account of its straggly habit and its colour—which is pale mauve and inferior to the opaque light sky blue of L. alpinum. Botanically it is distinct from alpinum mainly by being downy in part and by its thinner pointed sepals and petals, the petals of alpinum being full and rounded. The colour and habit of both are far surpassed by L. austriacum, which has not yet found its way into catalogues but is successfully grown in gardens here and there. In nature I know of austriacum in a few places only, far apart: the Ligurian Alps, the mountains round Garda, and here and there among the hills of Greece. It is close to L. alpinum except in its impressive deep substantial azure and its more compact and stiffer habit. Mr. Farrer stated that it belonged to higher altitudes than L. salsoloides, and yet it was less hardy. But, actually, L. austriacum descends to the Mediterranean seashore and is very abundant on that botanically wonderful cape, the Capo di Noli, near Genoa; and, conversely, L. salsoloides ascends to over 6,000ft. As to its hardiness, I am informed by one who grows it that it gives no more trouble than the well known L. narbonense. All these mountain flaxes belong to the southern ranges and are most abundant on the southern frontages of the hills. To be safe they should be grown in sunny sheltered spots in light limy soil. There is a dwarf, shorter-leaved variety of austriacum called collinum, which is found, rarely, on a few hills in Greece, and which should be a prize for introduction, as it combines the compact habit of L. salsoloides nanum with the exquisite colour of L. austriacum. The dwarf salsoloides is reputed the loveliest of the flaxes, yet I have so far noted it in one catalogue only, and even there it is not the dwarf form that is specified. The colour is white, flushed with rose at the base, and striated with rose on the petals. It has the rounded petals and broader sepals of L. alpinum and is a variety of the Spanish species L. suffruticosum, and not, as Farrer stated, of L. tenuifolium. L. suffruticosum is sub-shrubby (as is salsoloides), has white petals (sometimes ochre yellow), rarely washed with rose and never with deeper striations, and is a taller plant, always downy, with larger and more numerous flowers. I do not think it is in cultivation. I have not as yet confirmation that L. salsoloides nanum remains dwarf in gardens, and it is not without significance that Burnat does not mention this form. Its merits have been loudly trumpeted, and as the spindly habit of the linums makes them rather untidy, especially in wet weather, dwarfness in this family becomes an asset; and this asset, together with the brilliancy of its colour, demand for L. austriacum—especially if its variety collinum might be procured — more attention than it has received.—E. E. T.

A USEFUL BOOK.

THERE are few branches of natural history or science with such a full technical vocabulary as botany and the science of plants. It is bad enough dealing with our own tongue, but when these technicalities occur in foreign languages in different forms, the amateur's difficulty of making out the meaning is magnified a hundred times. This is obviously one of the main causes against closer international relations between horticulturists. In 1920 two Americans called Artschwager and Smiley produced an invaluable little volume called "The Dictionary of Botanical Equivalents," consisting of a compilation of French and German botanical terms, with their English translations. So successful has this been that the publishers have lately produced an enlarged edition, including in it Dutch and Italian botanical terms and their English equivalents, as well as the original French and German sections. This opens out a new field of literature to British gardeners, to whom most foreign horticultural writing has been a closed book. The book is published by The Williams and Wilkins Company of Baltimore, and is sold in the British Isles at 16s. 6d.

PYRUS IN SCOTLAND.

PYRUS SARGENTI.—This is a shrub of bushy habit with me about 5ft. high. Leaves, oval, 2ins. to 3ins. long, 1in. to 2ins. wide. Flowers white, produced in clusters of five or six on a stalk 1in. to 1½ins. long, followed by bright red fruit. This pyrus is a pretty plant when in flower and fruit, and is quite distinct among crabs by its bushy habit, and I can recommend it for a garden in Perthshire, where it comes into bloom in early June.

A FINE BUSH OF PYRUS SARGENTI.

PYRUS VILMORINIANA.—This small tree with me is about 8ft. high, a slow grower, and is one of the smallest in the mountain ash group, with neat, handsomely divided leaves. Flowers white, produced in June on slender stalked corymbs forming a pretty inflorescence 3ins. to 4ins. across. The fruit of this species is very attractive. The abundant clusters of white fruit with a slight pink tinge show up well in autumn. This species is a native of western China, originally reared in France in 1889, and is quite hardy, and one of the most elegant species introduced in recent years.—ANDREW HARLEY, *Glendevon*.

PYRUS VILMORINIANA IN PERTHSHIRE.

THE MOLY AND ST. JOHN'S WORT.

DODOENS, who lived towards the latter half of the sixteenth century, writes of the moly, and says that Dioscorides describes it as having leaves like grass, which spread on the ground. The flowers are white, so is the stalk, at the top of which groweth "a certaine thing fashioned like garlicke." The root, he goes on, is "rounde as an onyon." Then Pliny is quoted, but his moly has not a bulbous root; he agrees, however, with Dioscorides as to leaves, which he also compares to "grasse layd flat upon the ground." He also crowns the stalk with a white flower. Its properties are magical, in fact, there is almost no bad luck that it cannot ward off. Homer describes it and tells how Ulysses walked under its protection, unharmed in the sties of Circe. Milton alludes to the incident in "Comus," "That Moly, that Hermes once to wise Ulysses gave."

In Thomas Green's "Universal Herbal," date 1820, we find Allium magicum or Homer's Moly, described as having yellow flowers, and we are told that people grew it in their gardens, although it has a strong scent. So moly is an allium; and as the alliums are, bluntly speaking, onions, we gather that it has great counterbalancing qualities. Well, here they are taken from a later author, Alphonse Harr, botanist and poet. He says you may spill salt, meet a spider, a hare may run across your path, a crow may fly past on your left hand, you may sit down thirteen at dinner, you may do anything on a Friday that you like, and snap your fingers—if you have Allium aureum in your garden. You notice that it is aureum in this whimsical French author's fantasy. He describes it as having yellow flowers. He goes on to say that many people have it in their gardens, and, not being florists, know not that they

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have it. They have astounding good fortune, everything prospers that they undertake, and they have absolutely no idea that it is to this assiduous vegetable that they owe all their immunity from evil. As soon as the lotus eaters are "propt" by Tennyson on "Amaranth and Moly," they become tranquil and contented.

There seem to be a good many molys: I find Homer's, Indian, Spanish Purple, Spanish Silver-capped, Yellow, Hungarian and Serpent's Moly.

Then, lastly, I look up moly in Chambers' English Dictionary. Alas, it is summarily dismissed as a "fabulous plant," a mere Mrs. Harris among vegetables, and I had hoped to plant it in my garden and to dwell under its ægis for the rest of my natural life.

The St. John's Wort is no less efficacious in succouring distressed humanity than the classic moly. St. John the Baptist is the saint after whom the Hypericum family is named. The longest day is dedicated to him, and on its eve all spirits of evil roamed abroad. Bonfires were lit, and dried herbs cast into the flames, St. John's Wort being an important one, and the fumes arising therefrom protected people from malign influences. After the date of John the Baptist's "decollation," a species exudes red juice in memory of his bloody death. The perforated St. John's Wort has semi-transparent spots pricked through the leaves, and could cure any wound in the "old unhappy times," and if it was more convenient to salve the weapon, withdrawn from the wound, rather than the patient, the result was quite as satisfactory. The Lady of Branksome made a wonderful cure of Deloraine by this method, compared to which prescribing by wireless is rather commonplace. If folk had St. John's Wort within reach, they could, like Ajax, defy the lightning. One species is called Tutsan, from the French *tout sain*. Fairies could not carry off a child and substitute a changeling if a bunch of St. John's Wort were tied to the cradle. Witches were robbed by it of their powers. Meg Merrilies' rhyme occurs to the mind:

"Trefoil, vervain, John's Wort, dill,
Hinders witches of their will."

It, being dedicated to Saint John, was a favourite plant of St. Columba. Finding a little child weeping for fear that some of the cattle committed to his charge should stray while he slept, St. Columba placed a sprig under the boy's arm, assuring him that the cattle would now be safe. It is, therefore, sometimes called by the curious name of "The little armpit of Columba." The trailing St. John's Wort, an apparently delicate little species, which the writer has in the garden, has really an iron constitution, and can oust many more robust-looking plants. It has been ungallantly named "The Lady's Tongue," as it runs on and knows not when to stop. Such are the qualities accredited to moly and the St. John's Wort, not much more wonderful, perhaps, than the real qualities possessed by many plants used in medicine. I shall end with a quotation from Lord Lytton. If a stranger had told a tribe of savages "that the herbs which, every day, they trampled under foot, were endowed with the most potent virtues . . . that tears and laughter, vigour and disease, madness and reason, wakefulness and sleep, were coiled up in these unregarded leaves, would they not have held him a sorcerer or a liar? The moly of the ancients is not all a fable."—E. M. J.

A GARDEN IN NEW ZEALAND.

THE part of my garden shown in the illustrations is an old creek bed, originally very rough, worn into deep holes and steep banks by the rush of storm water from the surrounding hills; the storm water we carried off with large pipes, levelled and filled most of the holes, and with the help of an artesian well, converted some of the holes into lily ponds. It has proved an ideal place for Japanese irises, as well as those of the ochroleuca and sibirica types, primulas of the moisture-loving kind, many of our native plants and trees that like partial shade and moisture, as well as such things as clivias and crinums.

The tree ferns in one illustration are Cyathea dealbata, the silver tree fern, very dainty when a little breeze shows the silver undersurface of the fronds. In the right-hand corner is a young rimu (Dacrydium cupressinum), one of our most beautiful forest trees in its early stages and also one of the most valuable commercially when mature; this tree is about 14ft. high and twenty years old. Immediately behind it is a pohutukawa (Metrosideros tomentosa), the Christmas-tree of New Zealand. In December it is covered with crimson heads of myrtle-like blossoms. The bamboo is a fine-leaved one we call "gracilis," and the tree on the left is a native matipo (Myrsine Urvillii) with reddish brown leaves curled at the edges, very distinct.

The tree in the centre of the other illustration is a native ngaio (Myoporum lœum), which, like the pohutukawa, grows right on the sea beach and is a valuable shelter tree on that account. This tree is covered with a climbing rose, Stella Alister Grey, which a fortnight later was crowned with its yellow clusters, which perfumed the garden. On the right, a liquidambar and a philadelphus, neither yet in full leaf. Behind, a flowering cherry, and, on the extreme left, a karaka (Corynocarpus lævigata), a glossy-leaved native tree with clusters of orange red berries 1in. in length. The iris is dalmatica, very effective with its grey-green leaves and soft blue flowers. The shrub behind the iris is rather an interesting native called koromike, or wine berry, (Aristotelia racemosa). It has large soft

A CORNER OF A NEW ZEALAND GARDEN.

SUB-TROPICAL GARDENING IN NEW ZEALAND.

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leaves, purple underneath, and in spring is covered with tiny flowers of many shades of red, followed by red berries which change to black when ripe. It is very common, coming up as second growth when the bush is cut down.—J. GIBBONS, *Wanganui, N.Z.*

ROSE ALBERIC BARBIER.

THE value of the climbing rose for covering pillars or structures, and so producing beautiful effects when in flower, is well known. Some varieties of this section fulfil the purpose better than others, but each has its quota of beauty and charm for any garden, be it small or big. Not so frequently seen is the variety under notice, Alberic Barbier, and of which it has not been my good fortune hitherto to have seen a better specimen. This rose is early-flowering—at its best by mid-June—and bears white blossoms of semi-double form.

Incidental to the plant shown, I understand it is never pruned beyond the removal of dead wood, all new growths being secured in one or other direction for extension. The plant is in the garden of Miss Newman, Church Street, Ampthill.—C. TURNER.

A VERY FINE SPECIMEN OF ROSE ALBERIC BARBIER.

OMPHALODES LUCILIÆ.

NOMINALLY not difficult to cultivate if certain requirements or conditions are fulfilled, Omphalodes Luciliæ has a not undeserved reputation of being difficult to grow. Yet one sees it under conditions which do not always meet the injunctions of the experts, and I was much interested to see it growing and flowering admirably in a moraine in the rock garden in the nurseries of Messrs. Oliver and Hunter at Moniaive, Dumfriesshire. There it was evidently happy in a part of the moraine shaded by other plants in the rock garden close to the moraine. Some of these were really overhanging the omphalodes. The late Mr. Reginald Farrer, an enthusiastic admirer of O. Luciliæ, and probably the pioneer among British growers of moraine treatment for troublesome plants, advocated the moraine or a sunny wall or rockwork for O. Luciliæ. He laid great stress upon a free, open soil, with grit and lime rubbish, but while he gave such alternative suggestions he stoutly urged sunshine as an essential element. At Moniaive, however, O. Luciliæ was thoroughly happy and flowering freely and taking possession of the part of the moraine about it. When it is happy O. Luciliæ is indeed a lovely thing with its glaucous blue-green foliage and its fine, loose sprays of pearly blue flowers in great plenty, and is charming in its way. Its great enemy is the slug and happy are those whose gardens are not subject to the incursions of this terror of the grower of good and exquisite plants such as O. Luciliæ. Even the stony surface of the moraine is not always a sufficient barrier to protect this gem from this foe, and we must have recourse to all kinds of traps. Its undoubted beauty and elusive charm well repay one for any care and thought given in its successful cultivation.—S. ARNOTT.

EARLY VEGETABLES

BY EDWIN BECKETT.

(Concluded from page 556.)

IT was shown in the previous article how much can be done during the period of late autumn, winter and the spring, in this endeavour to obtain early vegetables, and as it may be of further assistance to those who would undertake this work, I will briefly tabulate the foregoing in two ways, the first being a comprehensive list under the months, and the second arranging the work according to the apparatus at command.

SEPTEMBER.

Cauliflowers.—Second week sow in cold frames for wintering, and repeat at end of month.

Endive.—Prick out into cold frames for wintering.

Lettuce.—Treat in same way as endive.

Mushrooms.—Make up fresh beds for succession.

Parsley.—Sow in cold frames for winter use.

Tomatoes.—Sow in heat for early spring work.

OCTOBER.

Cauliflowers.—Prick out seedlings from previous month's sowing.

Lettuce and endive.—Prick out previous sowings in cold frames, and lift plants from open ground, packing in cold frames for wintering.

Mushrooms.—Repeat as for previous month.

Chicory and rhubarb.—Place roots in mushroom house or cellar as noted for early supplies.

NOVEMBER.

Mushrooms, chicory and rhubarb.—As previous month.

French beans.—Sow in pots and raise in gentle heat.

Mustard and cress.—Frequent sowings for maintaining supply.

Seakale.—Lift plants from open, plant in mushroom house or in pots, and keep in the dark.

DECEMBER.

Mushrooms, rhubarb, chicory and seakale.—As for previous month.

Asparagus.—Commence forcing in frames on hot beds.

JANUARY.

Cauliflowers.—Sow in boxes or in a frame on mild hot bed.

Lettuce.—Raise as noted for cauliflowers this month.

Mushrooms, rhubarb, chicory, mustard and cress, and seakale.—As noted for previous months.

Carrots.—Sow stump-rooted varieties during first week in frames on mild hot bed, and long varieties in heated brick pits in good depth of suitable compost.

Broad beans.—Sow in large pots or boxes, in cool vinery.

Onions.—Sow in boxes and raise in heat for planting out.

Peas.—Early varieties sown in pots and raise in cool house.

Potatoes.—Plant sets in large pots or boxes and place in a cool vinery.

Radishes.—Sow between the rows of carrots, in frames and pits.

Asparagus.—Continue forcing as noted for previous month.

FEBRUARY.

Chicory, rhubarb, mustard and cress, and asparagus.—Repeat as above noted.

Tomatoes.—Make sowing for main crops and raise in heat.

Broad beans.—Sow in cold frames (in boxes) for early planting.

Peas.—Raise in boxes in cold frames for early planting.

Potatoes.—Plant sets in frames on mild hot bed.

Vegetable marrows.—Raised in heat for pot or frame on hot bed planting.

Celery.—Sow seed for early crops and raise in moderate heat about the middle of month.

Turnips.—Sow in cold frames about mid-month for early supply.

MARCH.

Rhubarb, asparagus and mushrooms.—As for previous months.

Lettuce.—Sow in boxes in cold frames for planting out.

Broad beans.—Final sowing as noted for February.

Peas.—Sow marrowfats, for early planting, in boxes and raise in cold frames.

Potatoes.—Another planting may be made in frames if room.

Beet, globe.—Make a sowing in frames on mild hot bed.

Brussels sprouts.—Where early buttons are wanted a sowing should be made in boxes and raised in a cold frame.

Mint and tarragon.—These can be brought into early use if planted in boxes and brought along in frames on mild hot bed.

The foregoing monthly work, for the six months of the winter period, can now be further summarised as follows:

COLD FRAMES.

Cauliflowers.—Two sowings at middle and end of September and prick out in October, into other frames.

Endive.—Prick out August sowings into frames in September, and again in October, and

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lift from open ground in October, packing in frames for wintering.

Lettuce.—Deal with on the lines noted for endive. Make a sowing in boxes in March for planting out.

Parsley.—Sow in September for winter use, and prick out in October.

Broad beans.—Sow in boxes in February and March for planting out.

Peas.—Sow in boxes during February and March as detailed above.

Radishes.—Sow between potatoes grown in frames in March.

Turnips for early supplies may be sown about the middle of February.

Brussels sprouts.—To get early buttons a sowing may be made in boxes in March, and raised in cold frame.

HOT BEDS.

Asparagus.—Forcing of this can be commenced in December, and continued on through January, February and March.

Cauliflowers.—Sow in boxes during January, and raise in frame on mild hot bed.

Lettuce.—Early supplies can be sown during January, either in boxes or direct into the frames.

Carrots, stump-rooted.—Sow first week in January.

Potatoes.—Set the "seed" in frames on mild hot bed in February.

Radishes.—Sow between the foregoing potatoes.

Beet, globe.—Sow in March in frames on mild hot bed.

Mint and tarragon.—Put in boxes and place in frames on hot bed in March.

Vegetable marrows.—Grow on in frames from plants raised in heat.

HOUSES AND PITS.

Tomatoes.—Sow in September for early spring work, and in February for main crop.

French beans.—Sow in 8in. pots in November, and raise in temperature of not more than 65°, and repeat sowing in January.

Carrots.—During first week in January, sow in brick pits, in good depth of compost.

Broad beans.—Sow in January in large pots or boxes, and raise in a cool vinery.

Onions.—Sow in boxes during January to obtain large specimens.

Peas.—Early varieties should be sown in large pots in January and raised in a cool house.

Potatoes.—Plant sets in large pots or boxes during January, and grow them in a cool vinery.

Radishes.—Intersow the rows of carrots in pits.

Celery.—Sow in middle of February in moderate heat.

MUSHROOM HOUSE OR CELLAR.

Mushrooms.—Make up fresh beds in mushroom house monthly during the winter period to maintain supplies.

Chicory.—Make a start in October, by taking a few roots into the house or cellar, for salading work, and continue with fresh supplies of roots about every three or four weeks.

Rhubarb.—Monthly supplies can be dealt with in a similar way to chicory, starting in October.

Seakale.—Making a start in November, this can be treated in similar fashion.

As was stated at the beginning of these notes, no attempt has been made to deal with every aspect of the subject. Cultural details have been, for the most part, omitted, such as instructions as to covering against frost, where necessary, airing, syringing, composts, temperatures (to the point of exactitude), etc. It would need a volume to set all these points out, and a careful grower will soon settle these for himself, but enough has been written to make the subject fairly comprehensive, and the writer's last wish is that many more will take interest in this fascinating and profitable side of vegeculture, to their own benefit and gain.

CORRESPONDENCE

COLOUR AND CATALOGUES.

SIR,—In an Editorial the other week you made the timely suggestion that the R.H.S. should publish a colour chart. This has already been done in France by the Society of French Chrysanthemum Growers, in collaboration with M. René Oberthur, in the form of a colour dictionary, under the title of "Répertoire des Couleurs," published in Paris in 1905. What has been done by a specialist society in France can surely be done by the premier horticultural society in the world. If issued under authoritative auspices, a colour dictionary would become an indispensable book of reference both to the horticultural and to other spheres of activity, and though expensive of production, it would have an almost guaranteed sale.

I write "expensive" advisedly, as a production of this kind must be the printer's very best work, otherwise the present confusion will become worse confounded. Mr. Farrer deplored, and rightly, the colour misfits which disfigure handbooks on alpine plants and which, in many cases, give a totally inaccurate idea of the flowers which they thus libel. Modern colour printing is put to shame by the colour work of a century ago, as witness the old plates in the Botanical Magazine. Let me hasten to add that the too few coloured covers issued by THE GARDEN do not come within this condemnation.

A glance through half a dozen garden catalogues will, I am sure, prove that colour is a weak point with their compilers. Thus, Ramondia pyrenaica is variously described as violet, purple or lilac; Cyclamen europæum as red, crimson or purple; Androsace lanuginosa, as rosy lilac, rose or bright rose; Primula marginata as bluish lilac, rosy purple or lavender; P. Bulleyana as apricot, orange or orange-scarlet; and P. Juliæ as claret-crimson, deep rose, rose-purple or bright violet. Examples might be multiplied. I am not scoffing at the catalogue writer; colour description is a matter of the utmost difficulty.

Not that I would have any attempt at standardisation of the descriptions of flowers, nor do I think a colour dictionary would have any such result. The shades and combinations of colours are so infinite, and a flower field rivals the artist's much-daubed palette rather than his colour-box.

An authoritative colour guide is all the more essential to-day by reason of the rapidity with which modern colour taste is changing, and the increasing elusiveness of the colours that leap into vogue. Not so long ago magenta was anathema. Nowadays it is popular, though it is not the simple magenta of old. It is a more complex colour, expressing itself in shades of cyclamen and fuchsia. The great Paris dressmakers are coining new colour terms with every autumn and spring season, and look how often they borrow from the garden: delphinium blue, parma, pervenche or periwinkle blue, hyacinth blue, beech, almond green, artichoke, Bois-de-rose, are all taken from this autumn's "Fashion" announcements. Modern tones such as nude, shrimp, sea blue, dust blue, lead pencil, bottle green, steel, Puritan grey, camel's hair, rubber, crayon pink, ibis pink, biscuit, lacquer red—taken from the same source—bear witness to the search for new shades and for new colour terms.

It may be said that these are fantastic names dictated by the passing phantasies of Fashion. Yet they do, in fact, suggest by association the refinements of colour which alone are now demanded. Nor is the garden catalogue so far behind. In one of his books Mr. Farrer resented the impossibility of describing the colour of a flower without reference to a precious stone. Thus we use ruby, coral, amethyst, pearl, turquoise, emerald, sapphire and garnet purple, and these seem pre-eminently suitable to the brilliant lights of the high alpines. But Mr. Farrer himself wrote of the "grey flannelette" of edelweiss, and thus borrowed from textiles; and my catalogue describes other flowers as "white felt," or "satin-white," or again, "purple-shot sapphire."

If every individual writer gives rein to his own exuberant fancy, we shall arrive at chaos—whence arises the need for co-ordination and direction. But for myself, many colour terms have within themselves a definite colour concept, which is arrived at on the principle of the association of ideas. A defect of the "Répertoire des Couleurs," which I mentioned above, is that it uses terms which, in this country at least, carry with them no colour associations and are machine-made and inexpressive. Among these are "Orient blue" and "Victoria blue," the latter being divided into four shades. What on the other hand could be better calculated to cause a clear colour concept to spring up in the mind than eggy, brick red, primrose, snow white, blush and so on—even though the yoke of an egg may be deep or anæmic, primroses may sometimes be white or red, the snow of the upper glaciers be of a purity not always known to the denizens of our smoky towns, and a maiden's blush (if such now there be), may vary from shell pink to vivid carmine? The editor has suggested "verna" or "acaulis" as colour terms, because "gentian-blue" is not stable. But neither, after all, is the colour of verna or acaulis stable. In addition, "acaulis" strikes me inevitably as machine-made, and evokes no colour association. Verna and acaulis are adjectives, meaning vernal and stemless respectively, and I would have difficulty in dissociating them from those and associating them with other interpretations. It occurs to me that all the new colour terms I have instanced are based upon nouns, not adjectives—or names of things which automatically evoke in the mind the desired colour. As colour terms they are new, but they are old, well known words. Gentian blue to my mind is quite definite, even though the colours of actual gentians do vary very greatly. What is stable is not the colour of the gentian, or of the brick, or of the blush, but the popular conception of gentian blue or brick colour or blush. Again, to describe a flower as "purple shot peacock; blue flamed orange" is bad enough, but I hesitate to suggest as a substitute a four-worded horror of plant names like verna or acaulis.

The real problem of colour description is not one of new colour terms, but of using with accuracy old, well known words to suggest refinements of shades which the old colour terms are too broad to convey. Hyphenated words like "rose-lilac" are objectionable, not because they are hyphenated, but because they are indecisive; the two colours, "rose" and "lilac" are not transmuted into one colour by the name "rose-lilac." Similarly "white-rose" would be useless, because it would not give rise to a definite conception, but the two colours "white" and "rose" have been transmuted, as in a crucible into the beautiful word "blush." It is a problem of accuracy of the adaptation of words to colour ideas, and of co-ordination by a central authority. Some people, as Mr. Farrer was, are gifted with an uncanny ability to make a living colour arise out of the written word; but the majority of us need a guide. It is in this respect, I submit, that a colour dictionary would render great service.—E. ENEVER TODD.

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SWEET WILLIAMS AND NEPETAS.

SIR,—I was interested in the note on the propagation of sweet williams by cuttings, because I have always done it this way, thinking that it was quite a usual way of treating them. I always, however, transplant the cuttings early in the spring, when they are rooted, owing to the retentive nature of our soil. Old plants from which all the straggling shoots have been removed for cuttings, will shoot from the crown, to make fine, bushy plants for the next year.

As you said recently, nepetas are very easily increased by cuttings. Last autumn I had a few odd bits torn off a plant given me. One of these rooted well, and last July I took twenty-four cuttings from this one plant, all of which are nice, well rooted plants now. The effect of this robbing the plant early has been to make it flower on branch shoots all the more. There are plenty of shoots for cuttings which could be taken now.

The most effective planting of nepeta that I have ever seen was in a sunk garden. A long, low brick wall ran through it. All along the edge of this wall, a broad belt of nepeta was planted, which overhung the wall, and strayed here and there, back from it, on the top. The background was a well covered pergola. The effect was very fine. —J. E. P. BOOTH, *Surrey*.

THE DIVIDING OF MICHAELMAS DAISIES.

SIR,—Claremont's note on page 531, advocating the division of clumps every two years coupled with another season's experience in my own garden of planting single shoots annually, makes me wonder whether the one-stem system is as good as the other for practical flower-border purposes. It has two very valuable advantages, in that it gives us extra fine flowers and also because it enables us to give the go-by to that disfiguring disease which asters have to pay as a penalty for their increased popularity. On the other hand the joints which attach the large side shoots to the central stem seem to be peculiarly brittle. Not only are these side shoots broken off by high winds but, as I have noticed on two occasions this autumn, heavy and continuous rain has had precisely the same effect. I cannot think of any dodge of staking the plants which, without being too obtrusive, will give the necessary support to prevent these contretemps. Obviously a sheltered position is the first idea that comes into one's head. My collection this year is in such a position. It has, however, been a case of out of the frying pan into the fire, for avoiding the Charybdis of wind they have fallen foul of the Scylla of rain.

Although I fear the answer will be "no," I ask, is there any dodge whereby these pitfalls can be avoided?—JOSEPH JACOB.

ASTER THOMSONII NANA.

SIR,—I have been pleased to see so many references to this desirable plant in the horticultural Press lately.

Personally, I think its beauty and general utility cannot be exaggerated. Apart from its usefulness as an outdoor subject, it makes a delightful pot plant for conservatory work, and under these conditions it shows an even more beautiful shade of colour.

I have grown every variety of Aster Thomsonii I could secure, but the true nana variety is, in my opinion, the best.—T. L., *Newcastle-on-Tyne*.

CHEIRANTHUS HARPUR CREWE.

(C. ALPINUS FL. PL.)

SIR,—Your correspondent "W. F." in the issue of September 19th may rest assured that the above is still in cultivation.

It is worthy of much more general use. Apart from the hardiness of the plant and its gorgeous display of very sweetly scented flowers, it is an object of beauty when not in flower, much resembling a small neat plant of Veronica Traversii.

It roots easily from cuttings at almost any time of the year. As a pot plant for conservatory decoration a three or four year old plant is as attractive and fragrant a subject as could be desired.

Although it is many years since I first gave instructions for increasing the stock of this plant and I have periodically repeated the same, I do not appear to have any more than formerly.

Perhaps the explanation of this is due to my foreman's remark that "every customer wants it who sees it in flower."—T. A. LAWRENSON, *Gosforth, Northumberland*.

THE WILD TEAZLE.

SIR,—The remarks of W. Linders Lea in the issue of September 19th concerning dipsacuses greatly interested me, as I have grown them in my garden for many years, and have

A HANDSOME TEAZLE.

found them very ornamental, if somewhat of a nuisance when the seed is allowed to fall.

A few years ago some teazle seeds were collected in an out-of-the-way district among the Kentish Downs, because the heads themselves were of exceptional size, the stems being about 3ft. or 4ft. high. The seeds were sown, and the resulting plants produced similar large heads upon stems quite 6ft. in height.

Owing to alterations in the garden, the self-sown plants from these domesticated teazles were pulled up, and to all appearances the dipsacus was banished from the garden.

But this was not the case, for a plant was observed one day close to some palings that surrounded a kitchen garden, among some other tall subjects that were allowed to grow unmolested. The plant grew to a large size, with enormous leaves, and the final result was the splendid plant shown in the accompanying illustration, the topmost head being just 7ft. 3ins. from the ground level!

This proves the value of the wild dipsacuses when brought under cultivation. There was an abundance of decorative material of an everlasting nature provided by this one plant, which did not demand the least attention from the gardener nevertheless. Many a wild-looking spot in gardens or wasted ground near trees could be beautified by a plant or two of these wildings, and they effectively hide the ugliness of sheds or fences. —H. A. DAY.

ROSE GOLDEN EMBLEM.

SIR,—I am most interested by Mr. Easlea's letter in this week's number on the subject of Rose Golden Emblem, and, as a very enthusiastic amateur rose grower, I should like Mr. Easlea to give us more details as to the culture of this rose, as well as his own experiences with it. In my small garden I grow practically nothing but roses—over a thousand—and have been very perplexed at the way Golden Emblem is cut back in winter after pruning; it seems very susceptible to keen winds. My soil is well worked and well limed clay, and I have taken a good deal of trouble in preparing it. Those plants which have not been cut back by the weather have not made a normal growth, few of them being over 2ft. high, though they have produced a very fair amount of bloom. Personally, I find that Christine is a better grower in this soil, though the blooms are not quite so large as those of Golden Emblem. Another famous rose, with which I have not had much success is Los Angeles. Last year, its first season with me, it did quite well, in spite of the weather; this year it has been very poor, producing few blooms and still fewer leaves, though at the same time showing no apparent signs of disease. I cannot account for this, as it is in a good and sheltered position, and there are at least sixty plants in the one bed, all of which show the same signs of poorness of growth.

On the other hand, I have been very successful with Betty Uprichard, which I consider to be one of the finest bedding roses in cultivation, and also with General McArthur, Hoosier Beauty, Independence Day, Lady Pirrie and Mme. Edouard Herriot. As a mere amateur with only a few years' experience, I am rather at a loss to explain my lack of success with two such popular roses as Golden Emblem and Los Angeles, and I should welcome the advice and opinion of expert rosarians, like Mr. Easlea, on the subject. I should like to add that I have heard this year of several other people besides myself who have been unable to grow Golden Emblem successfully. —W. R. YOUNGER.

OUTDOOR SEED BEDS.

SIR,—I have been much interested in your leader in THE GARDEN for September 19th *re* Outside Seed Beds. I have been trying a similar plan, but with commoner things, preparatory to sowing rarer seeds when I have sufficient stocks; but the trouble I have experienced has been with worms: they either expose the seeds with their casts, or raise the tiny seedlings out of the ground. Have you experienced any trouble in this direction, and, if so, how have you surmounted it?—E. B. ANDERSON, *Devon*.

[*Strangely enough, I have not been troubled with worm casts, which is, perhaps, due to the fact that the particular spot in which the seed beds were made had been undisturbed for many years.*—ED.]

PLEASE REMEMBER TO TELL OTHERS ABOUT YOUR PLANTS THROUGH THE COLUMNS OF "THE GARDEN."

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SOME UNUSUAL TREES FOR AUTUMN PLANTING

THE planting season being once more upon us, land and garden owners have again an opportunity of acquiring new and interesting treasures.

A summer spent in horticultural study in Brittany has revealed to me the fact that several trees which are very common in that land of grey skies and much rain are rarely to be found in Britain, the climate of whose southern and western counties much resembles that of Armorica.

Every garden of any size in Brittany possesses at least two Acacia Mimosa trees—one of the feathery-leaved variety—the sprays of which are sold in such quantities in the spring—and the other the narrow, flat leaved variety.

The former grows as large as an ash tree and has a wide-spreading habit. It is a mass of yellow blossom in the spring, being as floriferous as its brethren of the same variety which grow along the side of the Nile and afford such welcome shelter from the blazing Egyptian sun.

The Bretons subject the feathery acacia to very drastic thinning, as, if left to its own devices, it quickly grows beyond all bounds. It is frequently trained to cover the walls of houses and gardens. This it does with amazing rapidity. Great sprays are culled for house decoration with great advantage to the tree.

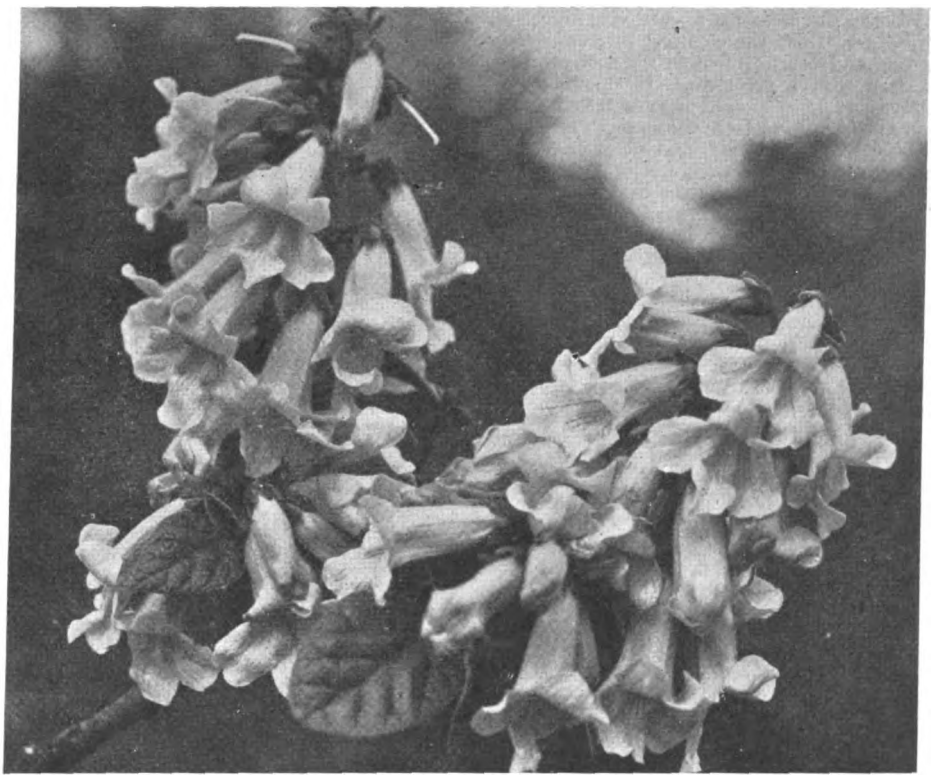
In September and October the flat-leaved Acacia Mimosa lights up the dull days with its large clusters of flowers, the colour of newly hatched white ducklings. Neither of these acacias is given any special care, and no protection is afforded them in winter.

Eucalyptus trees are also ubiquitous in Brittany, where they grow as high as Lombardy poplars. They are constantly lopped and the side branches are thinned out yearly, not only to keep them in bounds, but also to ensure a plentiful supply of the young shoots whose delightfully soft colouring renders them invaluable for picking.

Petticoat and other greenhouse varieties of fuchsia grow as large as laurel bushes in Brittany. A cottage where I lodged has a fuchsia tree of a very large-flowered variety which was planted as a cutting over twenty years ago. It reaches to the roof and completely covers one half of the house. On one side it grows out from the wall and forms a shrub-like growth, its top there being trained to extend outwards and form a bower over a path. It is covered with flowers from May to November, and is clipped severely all over every year—otherwise, its owner says, "there would be room for nothing else." Beyond giving it an occasional tilth and a little manure once a year, no care is taken of this fuchsia.

In the same garden are pentstemons growing as large as rhododendrons, which have been left in the same spot for many years. They have very large, deep red flowers, and are cut to the ground every autumn, but are given no protection in the winter.

The false acacia tree (Robinia Pseud-acacia) grows exceedingly well in southern England, but is, nevertheless, by no means common there. It will stand a vigorous climate, as in north-eastern France, where the winters are Arctic-like and long, false acacia trees are very abundant and attain to a great size. In fact, these trees will grow almost anywhere and in any soil, though they particularly delight in a heavy clay.



THE BLOOMS OF PAULOWNIA IMPERIALIS.

I have seen magnificent ones growing in almost pure chalk in the Marne Department. The robinia flowers early in the spring, and its deliciously scented blossoms are much beloved by bees. The shell-pink flowered variety is seldom seen in Britain, but it ought to be extensively grown on account of its exquisite beauty, which is arresting. I first saw it at Chalons-sur-Marne, where about half a dozen large, finely grown trees are planted in a group opposite the Prefecture. They were so lovely that I found it hard to take my eyes off them.

Catalpa trees, too, are rarities with us, but there is no reason why they should be, as they are not at all "miffy." Few trees surpass them in beauty. In Paris they line avenues and enrich the public gardens, but for the perfect contemplation of their beauty of form and the loveliness of their May flowers, catalpa trees should be planted in solitary splendour on a large lawn or in a park.

Paulownia imperialis is another attractive but little-known tree which flourishes in any aspect and most soils, though it prefers a chalky marl. It is an ideal tree for parks, as it has a magnificently spreading habit, and its large, light green leaves and bunches of white flowers with red stamens, which appear in July, render it highly ornamental in such situations.

VICTORIA SLADE.

GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants.

CALCEOLARIAS AND CUTTINGS OF BEDDING-OUT PLANTS.

THE calceolaria is grown very extensively in many gardens, and especially in villa and suburban gardens, by those residents who understand the plant. But some who like this flower fail to grow it satisfactorily, and lose many plants early in the summer. The writer often lost many before he adopted the following plan: In October the nice fresh basal shoots were selected as cuttings and duly inserted 2ins. apart in a firm bed of sand in a cold frame and watered. Then the frame was closed for a fortnight and shaded from any bright sunshine; afterwards a little air was admitted night and day, except in frosty weather. Probably the cuttings were sometimes frozen, but to prevent loss the frame was kept covered till the thaw was complete. Early in February roots began to grow, and so more water was applied and air admitted. At the end of March the young plants were transplanted in a bed of loam in another frame and fully exposed after the first ten days there. At the end of April they were planted in the flower garden. Rarely did any die; they formed big, bushy plants and were more satisfactory than any planted at the usual time in June. A few kinds of cuttings, such as those of heliotrope, verbena, alternanthera, coleus, iresine, etc., should be kept growing all through the winter in a warm greenhouse temperature; but those of zonal pelargoniums are best kept in a cooler temperature on shelves in a greenhouse or glass-pit, where fire-heat is only used at night and during foggy and frosty weather.

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A callus only is formed in the autumn, so small quantities of water should be applied. —GEORGE GARNER.

ROOT-PRUNING FRUIT TREES.

IN certain soils fruit trees make roots very freely, especially in loose ground. The annual shoots are strong—woody, too thick, and not well matured, bearing plump prominent eyes or buds; and, instead of a rich harvest of fruits the next year more and stronger wood results. Now, if we, every year, cut away this top growth without also cutting back some of the long, fibreless roots, the tree will not for many years come to a fruit-bearing state. The inexperienced cultivator may tell when a tree needs root-pruning as well as branch-pruning if he observes the annual growth closely. It should be moderate in strength, thinly disposed and well ripened by the time that the leaves fall naturally. This refers mainly to apple and pear trees. A newly planted tree receives a check and this check prevents the new growths from becoming, for at least two years, very luxuriant. If, after this time, they become very strong and unfruitful, then try root-pruning. A tree with a stem 3ins. in diameter 1ft. above soil level should have a trench taken out 2ft. 6ins. away from the stem. The trench should be 16ins. wide, and deep enough to expose all roots crossing; cut off the long fibreless roots and refill the trench with good loam, making it very firm. Larger trees will require that the trench be made at a greater distance. Wall trees, those grown as espaliers, bushes as well as standards, may all be treated in this way. It is very essential to success that the ground be fairly dry when the work is done, especially when refilling the trench.

HOUSING POT AND LIFTED PLANTS.

THERE are several kinds of plants grown in pots throughout the summer months on beds of ashes, outside, then taken into the greenhouse or conservatory to flower there in the dull days of winter. There are some, too, planted out in the summer and lifted in the autumn, potted or planted in beds under glass. Now, although some of these plants are regarded as fill-gaps, they are all useful and, if properly treated, very beautiful, and have been grown without causing much trouble to the cultivator. Salvias are generally grown outside or in cold frames, mostly exposed to the weather, and when they are placed under glass frequently shed their basal leaves and flower buds. The sudden change causes this check. These plants need air, but cold draughts are fatal to them. Extra care should be taken in the matters of ventilation and watering. Really, all plants so housed require this special attention. As the pots are closer together and the season is winter, less water is required—only sufficient to maintain the freshness of the leaves and flowers. Plants lifted from the open border and replanted in borders under glass should be watered thoroughly when first planted, then syringed lightly in bright weather early in the day, in preference to much watering at the roots. The structure should be closed, too, for a week, and afterwards more air should be admitted as the plants make new roots. The same treatment is advisable in the case of plants lifted and potted.

PEAS AND BEANS FOR AUTUMN SOWING.

EARLY and late supplies of both broad beans and peas are always appreciated, and to secure an early crop a sowing of both should be made about three weeks hence. In the meantime, the ground can be prepared. It should be dug deeply, and, if the soil is in good fettle, no manure need be given. For peas select the warmest and most sheltered spot in the garden and, if possible, a border sloping to the south; while in a few gardens will be found a border immediately in front of some greenhouses, which is ideal for early crops. Sow the seeds in flat drills, and at this season it is advisable to sow fairly thickly, as the weather and slugs will account for a number of the seedlings. To ward off the attacks of mice the seeds should be damped with water and then sprinkled with red lead. Any of the round-seeded varieties of peas are suitable, but so far I have not found one to beat The Pilot, which attains a height of 4ft. to 5ft. and produces a good crop of well filled pods.

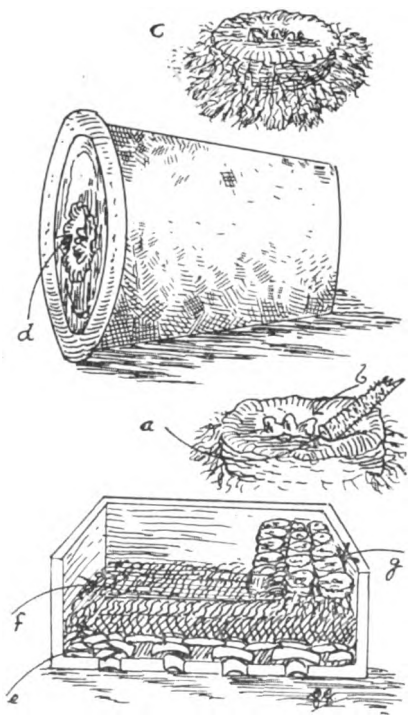
Broad beans do not require such a warm position, but it is best to choose a piece of ground sheltered from the cutting east winds, which often play havoc with the young plants during the early part of the New Year. The seeds should be planted in lines 18ins. apart and about a foot allowed between the seeds.

Just as the seedlings appear, a sprinkling of soot or air-slaked lime will help to keep off slugs and snails.

An excellent variety for autumn planting is Exhibition Longpod, but all the Longpod type are suitable.—T. W. B.

PREPARING AND WINTERING FLOWER CORMS AND TUBERS.

THE true lover of flowers has an equal affection for the dried corms and tubers when the season of rest for the latter comes.



The careless or indifferent cultivator neglects them, perhaps quite unintentionally, and does not realise the harm that has resulted till he takes out the various stocks and finds many rotted. The achimenes, those lovely little flowers so well adapted for pot and basket culture, can be wintered quite easily if the ripened tops are cut off 1in. above the soil and the latter, containing the corms, is left undisturbed till early next spring, being kept dry in the meantime. Pots of tuberous begonias and gloxinias are often placed one on the top of another under a greenhouse stage, and thus many unripe stems are violently broken off. Gladioli corms are lifted and the tops cut off while the stems are green and sappy. It is time enough to lift these in mid-October; then the corms with stems attached should be laid in boxes in a cool shed and left there till all life is gone from the stem and, in due course, it will be possible to store the ripe, polished tubers or corms in paper bags. Gloxinias and tubers of begonias should not be wintered too near to hot-water pipes, and there should always be boards between and the space filled with leaf-soil, peat or hemp seed. The crown of a corm is shown at *a* and *b*, with the ripe stem falling naturally away; the corm, *c*, is now fit to store in boxes, or, as at *d*, in pots. At *e* the drainage—old—is shown; the dry soil at *f* and the corms packed close together in dry material at *g*.

UNSATISFIED PLANTS.

MOST gardeners, at one time or another, are confronted by plants or shrubs which, no matter how carefully they may have been put in and tended, decline to prosper. Patience must, of course, be exercised in any case, and I generally give a plant two full growing seasons before deciding whether it is going to do satisfactorily or otherwise. But patience is a virtue in which one may indulge too freely and a too complacent attitude may mean the loss of years in so far as the flowering of some plants is concerned.

In endeavouring to discover the reason why a plant stubbornly refuses to respond to the treatment accorded it, one must review a number of possibilities. Primarily, there are the nature of the soil, feeding and aspect, but, important as these may be, they are not everything. There is atmospheric humidity which may vary considerably within the limits of quite a small garden. Some plants will thrive in the shade of a rock and detest the shade of a bush, even if not actually overhung by it, and there are many which will thrive in congenial company and decline to do otherwise than languish when lonely. Soils, again, which may often seem exactly alike in this border and that, may obviously be very different in the plant's opinion, and the same remark applies to aspect.

For some years we have been accumulating practical evidence that in most instances in which plants decline to be agreeable it pays one to take the bull by the horns and give the object a fresh start in a new position. This in the absence of any definite knowledge as to the cause of the plant's failure in the old spot, and without any assurance that it will do any better in the new, may be an empirical form of procedure, as well as an acknowledgment of defeat. Even so, the best of us still have so much to learn, especially about many of the newer subjects, that the practice of trying it on the dog is likely to be popular for a long while.

By way of an example, to illustrate the salutary effect of a shift upon an unresponsive subject, I may record the instance of a bush of Buddleia alternifolia, planted against a west wall, which did not grow more than about 6ins. in as many years. It was ever a feeble, disgruntled creature in spite of all possible attention. Last winter this specimen was lifted and again placed against a west wall in another part of the garden, the soil to all appearance being much like that of the old site. The result of this move was an immediate response on the part of the plant. It flowered, sparsely, it is true, at the normal time and made such extraordinary growth that it has leaped from a miserly shrub of 2ft. to one of extraordinary health and robustness, its longest growths now measuring no less than 8ft.

A very similar experience to the above we have had with a rare form of Ceanothus papillosus. This made at most but an inch or two of new wood annually for some ten years, and some of that often died off in places. At length we decided to risk shifting the precious object, and it has shown its gratification for the change by growing more

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in a single season than it had previously achieved in a decade. A yellow Banksian rose was given one of the choicest places in the garden, one that seemed eminently suitable, yet it declined to move, taking not the slightest notice of our ministrations. This shrub was at length moved to another spot, which anyone might consider identical as regards conditions with the other. But the rose thought otherwise, for it made several 5ft. growths the first season.

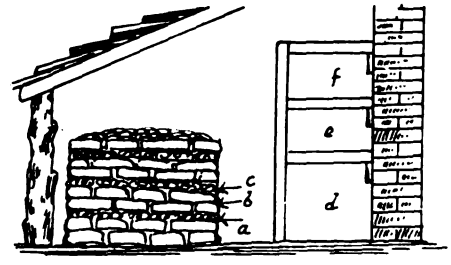
A like story might be told of Berberidopsis corallina, Clematis Armandi, an abutilon, a stuartia and several other shrubs, all of which are now prospering abundantly in new homes after having been tried in various spots without success. As for rock plants and herbaceous subjects, one has in these an even greater scope for the exercising of a little more of what one may term tolerance towards a plant's susceptibilities. That you can carry this sort of thing too far I readily admit, and the fidget who is for ever moving his plants from place to place is not likely to achieve much satisfaction. My object here is merely to suggest that the gardener who tells you a certain plant will not do in his garden might have reason to alter his opinion were he to try the subject in another site. The very act of lifting and replanting may in itself do good, as in the case of a specimen put out from a pot and whose roots have continued to go round and round, winding themselves into a ball. We are all, more or less, experimentalists and none can say why Daphne Cneorum ramps in my soil and utterly refuses to exist in my neighbour's. Nor can one explain why the latter grows Viola bosniaca like a weed, while with me it is a hopeless failure. And, after all, if we were able to give a reason for these problems, if gardening became an exact science and we believed half the things the catalogues and books tell us, our work and pleasure would lose most of their zest.—A. T. J., *N. Wales.*

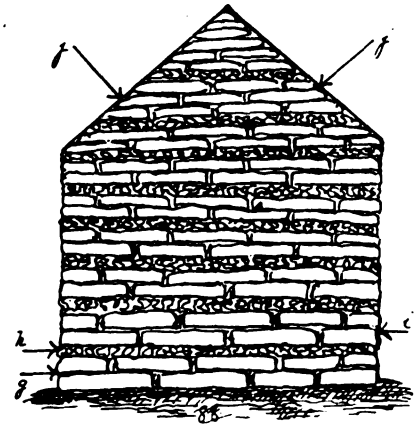
PLANTING BULBS IN BORDERS.

WHERE the flower-beds are occupied by summer-flowering subjects the latter must be removed and the soil duly prepared before any bulbs can be satisfactorily planted in the same borders. But all necessary work should be forwarded as much as possible in readiness for the planting of the bulbs in due time. Of course, bulbs thrive best in an open, well drained soil. All cultivators do not possess such and, therefore, unkindly soils should be improved by thorough pulverisation and the addition of some lighter material, such as gritty soil and leaf-mould. Many bulbs may be entirely grown in pure well rotted leaf-soil without the addition of any other rooting compost, so in tiny town gardens a bag of leaf-soil and some sand would be sufficient to form a little bed wherein to grow tulips, hyacinths, narcissi, snowdrops, or scillas, crocuses, etc. If such composts as leaf-soil and old potting soils are mixed with the ordinary garden loam it is advisable to take out as much of the latter so that the normal level of the border be maintained. Furthermore, I like to remove the top 4in. of soil from each bed, to add the rotted manure and thoroughly mix it with the lower layer of soil when that is deeply dug. The surface soil first removed should then be replaced and the bulbs planted. If the bulbs are planted before groundwork plants, such as aubrietias, every bulb should be marked so that other subjects be not planted directly over them.—G.

PROCURING AND STACKING POTTING TURVES AND OTHER INGREDIENTS.

AS millions of plants are grown in pots every year and also in borders in our glass structures, we are obliged to provide a suitable material for them to thrive in. The principal ingredient, generally, of all our composts is turfy loam. This should be cut and stacked at least four months before it is required for use. If used earlier, the grass roots are not dead and, of course, they begin to grow again in favourable conditions and give trouble. For this reason, chiefly, we should begin to cut and stack our supplies of turves in October. If I had the opportunity to choose, I would prefer a good fibrous, yellow, turfy loam from an upland; but we are not always able to procure such. For several years I had to cut turves from a low-lying meadow where they were soaked with water during a great part of the year, and were, consequently, in a sour state. To sweeten them I added lime and old lime rubble to the heap. To improve matters, in spring such turf should be opened out and restacked. An open shed is very useful. In such, stack the turves near the front as shown. On the two first layers place some rotted manure, *a*, then more turves and manure as shown at *b* and *c*. At the back of the shed, on the ground, *d*, place peat and leaf-soil supplies,





and above, at *e* and *f*, manures in bags or boxes and tins, also stakes and labels. If turves are stacked in the open, place them first, turves *g*, then manure, *h*, again turves, *i*, and finish the roof, *j*, *j*, with smooth sides to prevent rain entering. It is really very interesting work.—G. G.

HEATING GLASS STRUCTURES.

THIS is a matter to which all who wish to keep plants of a tender nature through the winter must attend. In some instances it will mean the fixing of pipes and boilers; in others the careful examination of old fixtures, cleaning and putting them into good order. I am now referring to cases where the heat from pipes is only used during the winter months. Of course, we all know that pipes when allowed to remain full of water when not in use do not deteriorate as much as when they are left empty. Air very often lodges in empty pipes, and if the air-escape pipes are blocked the whole of the pipes will not be filled with water, so that the latter, when heated, cannot circulate. That is the reason why the pipes, in spite of a well stoked fire, do not get warm. Spiders, flies and bees sometimes fill up the ends of the air-pipes; a small piece of wire will soon penetrate and remove any obstruction, and where air-valves only are used, these should be oiled and turned occasionally. Always allow for water rising in the feed cistern where ball-taps are not used, otherwise there will be waste of warm water. Do not paint the pipes with ordinary paint, but use lamp black and boiled linseed oil. It is always wise to study the question of fuel. Much must depend upon the make of the boiler, but for general use I do not find any kind better than two-thirds coke and one-third coal with ashes and slack for banking up at night. It is good policy to bank up on a bright clear fire and to regulate the draught accordingly.—HANTS.

BUSH FRUITS.

UNDER this heading will be found gooseberries and currants, of which latter there are red, white and black. Now is a suitable time to think about forming new plantations, and it is always advisable to trench the ground, at the same time adding a liberal dressing of partly decayed manure, because it should be some years before the necessity arises to discard the bushes. October and November are excellent months for planting all kinds of fruit trees, and the subjects under notice should be planted about 5ft. apart.

The gooseberry is the most valuable of bush fruits, and will bear heavy crops of fine fruit if given good culture, but unfortunately it is often neglected. There are a host of varieties, and it is impossible to grow anything like a collection, so the following names may be useful. Whinham's Industry, a red variety is one of the most popular and reliable; others are Langley Gage, Broom Girl, Keepsake, May Duke, Whitesmith, Dan's Mistake, Telegraph, Lancer, Leveller and Golden Gem. The ideal gooseberry bush should have a clear stem of 9ins., and the branches ought not to be crowded. This fruit is also grown as cordons, with excellent results. They can be placed on fences, and north walls, whereby the supply of fruit is prolonged.

The black currant thrives best in a cool, rich moist soil, but it will also succeed in any ordinary garden, if not given a dry, hot shallow soil. The best varieties include Boskoop Giant, Lee's Prolific, Baldwin's and September Black. Few varieties of white currants are needed and the best is White Dutch. It is sweet and well flavoured. Among the red currants will be found Fay's Prolific, Red Dutch, Comet and La Versaillaise, while Ruby Castle and La Constante are two good late varieties for planting at the base of a wall facing north to supply late fruits.—T. W. B.

TREATMENT OF MONTBRETIAS.

TO get the best results from them one must treat montbretias generously, that is they should have a good situation and the corms set in rich soil, 6ins. or so distant from each other, and 3ins. deep in the soil. Treatment of this kind makes a decided difference to the appearance and vigour of the plants, as when colonies are left for a few years without disturbance, the growths get so thickly crowded that the foliage becomes less in size, while the flower spikes share a similar fate. This, of course, is caused by the corms becoming crowded together, and by the soil in which they are grown becoming exhausted. Plants treated generously will grow to a height of 3½ft., and, indeed, are giants when compared to those seen in overcrowded masses in exhausted stations. The latter part of October or early in November is a splendid period of the year to lift, separate and replant the corms.—DAVID ARMSTRONG.

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EDITOR'S TABLE

MR. HARRY WHITE, of the Sunningdale Nurseries, has very kindly sent me specimens of various berry-bearing shrubs. The best was undoubtedly a wonderful berberis of the vulgaris group, which originally came from the Coombe Wood Nurseries. The berries are extraordinary, both in number and for the brilliant coral colour, the brightest I have ever seen. We hope to have a special note on this berberis within a week or two. Another good plant for berry colour is Cratægus persimilis, a relative of C. Crus-galli. C. persimilis usually does not grow to such a large size and makes a neat little tree. The fruit is freely born and is a good bright red. This is also the first time I have seen the fruit of that marvellous rose, R. filipes, one of Mr. Wilson's Chinese importations, which I have mentioned before in THE GARDEN for its quick growing and free flowering qualities. The hips are small, are carried in clusters and when ripe are deep red.

Messrs. Allwood have also kindly sent me blooms of their perpetual border carnations and Allwoodiis. These were all picked in the open and the vases in front of me prove their value for cutting at a time of year when summery flowers are scarce. Of the selfs among the perpetual borders I like Sussex Purple, which is a deep pure shade, and Sussex Supreme, a delicate blush pink and a large flower. There are also a number of the old-fashioned striped carnations raised from Dr. Hogg's old Flakes and Bizarres. I like Sussex Tricolor the best, a pale pink flaked with rose and deep crimson. The Allwoodiis are still crowded with buds and provided the weather is not too hard, they should remain in flower for weeks longer. Phœbe, a good salmon pink, is one of the best of the newer varieties, as also is Nora, a pale rose flaked with deep rose.

INTERESTING ANSWERS

I enclose an apple that I think may be of interest to you and some of my fellow readers of THE GARDEN. *This apple was shown at Shrewsbury Show last month and was then in perfect condition; it was given to a friend of mine, who placed it on a shelf in a pantry. The shelf is deal, unpainted, perfectly clean, and no iron or other metal near.*—H. H. H.

The apple is simply a diseased fruit. The disease affecting it is the "Brown Rot." Apples affected with the fungus that causes this disease, Monilia fructigena, soon turn black when stored under certain conditions, the skin, as in this case, remaining smooth and bearing little or no external signs of disease. But the flesh inside is permeated with the mycelium of the fungus and in a few days time, the characteristic pustules of the fungus will undoubtedly break through the skin of this apple—as always happens after a time. It is fairly common to find these black fruits in the store, though we must add that we have never seen quite such a perfect specimen as this before.

I shall be glad if you can tell me what I can do to prevent my roses (Ophelia in particular) from opening with the petals imbricated and bitten in flowers and buds. The plants are apparently healthy and make vigorous and strong growth and quantities of buds, but I have hardly had a healthy bloom from Ophelia, and the roses next to her appear to be "catching" it. Earlier in the season the buds opened before they were ready, the petals came short and apparently bitten off, and the green seed vessel showed sticking up through the petals. The only insect I have seen on the buds is a small fly, which I occasionally find dead apparently clinging to the tip of a young bud. Earlier in the season the caterpillar which makes the young leaves curl up in spring was rather bad. The beds were sprayed with blue water and winter wash last winter, and the roses have been repeatedly sprayed with Katakilla and paraffin soft soap during the summer.

We suspect that the injury to the rose blooms has been caused by the rose leaf cutting bee, which more usually cuts pieces out of the leaves to form its nest. As the insect does not feed on the roses, spraying would be of no avail, and the only remedy is to locate the nests and destroy them at dusk, when the bees are all in for the night. Although spraying with a good insecticide will check the ravages of the leaf-rolling sawfly, the better plan is to hand pick and destroy the rolled-up leaves when first seen.

Early in the season the first blooms of roses are often malformed as you describe. This is generally due to a slight excess of nitrogen, but it soon becomes balanced, and the next flowers are normal. If the malformation is serious, it may be remedied by applying 1 oz. of superphosphate of lime to each plant during February.

CATALOGUES RECEIVED.

Mr. T. Smith, Daisy Hill Nursery, Newry. A comprehensive catalogue of trees, shrubs and climbing plants. The lists are conveniently divided into sections, such as peat-loving shrubs, conifers, bamboos and grasses, evergreen, deciduous and flowering trees and shrubs. Mr. Smith offers an excellent collection of trees and shrubs, which all shrub-lovers will find of interest.

Mr. Ernest Ballard, Old Court, Colwall. A descriptive price list of new asters of the Novi-Belgii section. All the varieties given have been raised by Mr. Ballard himself, and many good novelties are included in the lists.

Mr. Frank Cant, Braiswick Rose Gardens, Colchester. A descriptive catalogue of roses of all types. All the roses listed are British grown and hints on the treatment of roses are given.

Messrs. James Carter and Co., Raynes Park. List of large-flowered sweet peas for autumn and spring sowing, including novelties for 1926.

Messrs. Laxton Brothers, Bedford. A well compiled catalogue of hardy fruits of all kinds. Careful descriptions and good illustrations are given of the new fruits raised by the well known firm of plant breeders. This catalogue should prove of great interest to all fruit-growers.

Messrs. W. Cutbush, Barnet Nurseries, Barnet. List of hardy fruit and roses.

Messrs. Stuart Low and Co. Bush Hill Park, Middlesex. A catalogue of roses and a special list of fruit trees for home cultivation.

Mr. John Wood, 4, Fitzroy Street, London. A well produced booklet showing illustrations of some of the beautiful rock and water gardens designed by this garden architect.

Mr. T. Hayward, The Chace Gardens, Cosham, Hants. List of hardy border carnations, including the best new carnations of recent introduction.

The Briton Ferry Chemical and Manure Company, Limited, Briton Ferry, South Wales. A booklet enumerating garden and horticultural specialities, such as fertilisers, manures for all purposes, soil fumigants, lawn sand, vaporisers and insecticides. This booklet gives much useful information.

Messrs. Robert Veitch and Son, 54, High Street, Exeter.—Lists of bulbous plants, including narcissi, tulips, hyacinths, scillas, colchicums, liliums, gladioli, nerines, etc. A price list of garden sundries, insecticides and manures is also given, which should prove of interest to all gardeners, and a special list of fruit trees, including trees in pots suitable for orchard house culture, and a list of roses.

Messrs. Dickson Brown and Tait, 57, Cross Street, Manchester.—A catalogue of bulbs of all kinds and a well illustrated and useful booklet on the culture of bulbs in bowls.

Messrs. John E. Knight and Son, Dudley Street, Wolverhampton.—A selected list of bulbs and also seeds for autumn sowing.

Messrs. A. J. and C. Allen, Bowthorpe Road Nurseries, Norwich.—An illustrated catalogue of roses, giving a list of 1925 novelties and detailed descriptions of the best roses of recent introduction.

Messrs. John Jefferies and Son, Limited, The Royal Nurseries, Cirencester.—A comprehensive list of British-grown roses.

FOREIGN.

An excellent little book, called "Beauty from Bulbs," has just reached us from Messrs. John Scheepers Inc., 522, Fifth Avenue, New York City. It serves the purpose of a catalogue, and a very fine one too, but is in reality a treatise on the leading varieties of bulbs for outdoor and indoor culture. The book is a well arranged one and contains numerous concise cultural articles on our different bulbs. Much useful information is given as to varieties suitable for woodland and border planting and also for the rock garden. The selection of varieties of the different sorts is a large one, and intending buyers should find their wishes gratified. Numerous half-tone and many coloured reproductions, which occur throughout the book, are exceedingly well executed and considerably enhance the value of the volume. It certainly stands as an excellent little brochure and serves to indicate how attractive a catalogue may be made. In its attraction lies its merit, as, no doubt, the publishers are fully aware by this time. We would recommend all our American readers who are bulb enthusiasts to procure a copy, and it certainly would be of interest to many on this side.

Messrs. L. Lemoine and Son, Rue de Montet, Nancy, France.—An interesting catalogue giving lists of greenhouse plants, ferns, an excellent collection of new and rare hardy shrubs, and perennials. Many fine varieties of asters, delphiniums, irises, phloxes and hydrangeas are given.

Mr. Carl Purdy, Ukiah, California. An interesting list of Californian bulbous plants. Many of these are of great beauty and succeed admirably in English gardens. Such bulbous plants as brodiæas, camassias, calochorti and many Western species of lilies are included. Another catalogue of herbaceous, perennial and alpine plants has come to hand.

Messrs. C. C. Morse and Co., San Francisco. A pamphlet offering three beautiful early-flowering Spencer sweet pea novelties. These three new sweet peas are valuable assets to the many varieties which are now in commerce.

Grandis Roseraies, Orleans, France. A general catalogue of new and rare hardy ornamental shrubs, perennials, clematises, peonies and roses. A fine and extensive collection of flowering and berried shrubs is offered.

We are asked to remind the readers of THE GARDEN that the British Carnation Society's show will be held at the Royal Horticultural Society's Hall, Vincent Square, on December 1st, 1925. The following new carnation, Lady Margaret Boscawen, has been registered by Messrs. Low and Shawyer, The Nurseries, Uxbridge. Colour clear pink, good stem and calyx, free and clear, crops freely, and flowers well up to average size.

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THE GARDEN

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THE ROSE—OUR NATIONAL FLOWER

LONG before Chaucer wrote:

The savour of the roses swote
Me smote right to the herte wrote,

roses were popular in England. Like in many another popular flower of the Middle Ages, the pleasure derived from them was probably that of taste and smell rather than beauty. Everyone knows that most of the early flowers were grown primarily for purposes of utility, but few realise how much the rose was used not only in scents and unguents but also for cooking. The flowers were used in many a conserve, one of which went by the attractive title of "rede rose," and a popular dish at one time was "sane saracen," of which the hips were the principal ingredient. Even in the time of Charles II, Sir Kenelm Digby gives the recipe for a "Conserve of Red Roses," and attractive it sounds too, although, perhaps, rather sweet for present-day tastes.

Probably the most reliable early description of the cultivation of the rose in England is to be found in Bartholomew's "De Proprietatibus Rerum," which was written about 1260. In the first English translation is quite a long description of the plant and its uses. "And by often chaunging and tylthing the wylde rose tornith and changith into a very rose. And the rose of ye garden and the wylde rose ben dyvers in multitude of floures; smelle and colour; and also in vertue." And again: "Among all floures of the worlde the floure of the rose is cheyf and beeryth ye pryse. And by cause of vertues and swete smelle and savour. For by fayrnesse they fede the syghte; and playseth the smelle by odour, the touche by softe handlynge."

We have to advance many years before a list of roses is given, or, indeed, many varieties are mentioned. Nicholson gives the following roses as actually being in cultivation in Britain before 1600: R. alba, R. centifolia, R. damascena, R. gallica, R. moschata, R. rubiginosa, R. sempervirens. There is, however, no list of varieties as opposed to species which were in existence before 1700. Although Gerard does not actually mention the name York and Lancaster, there is reason to believe that it was in existence in his day. In his herbal of 1597 he says, "It is the honor and ornament of our English Scepter, as by the coniunction appeereth in the uniting of those two most royal houses of Lancaster and Yorke. Which pleasant flowers deserve the chiefest place in crowns and garlands. The double white sort doth growe wilde in many hedges of Lancashire in great abundance, even as briers do with us in these southerly parts, especially in a place of the countrey called Leyland, and in the place called Roughfoorde not far from Latham."

Certainly at some period of the seventeenth or eighteenth centuries the cultivation of the rose must have increased enormously, far more than appears in print, for Mrs. Evelyn Cecil mentions that in the year 1826 the famous firm of nurserymen called Loddiges issued a catalogue in which no fewer than 1,393 species and varieties of rose are mentioned. This number seems to be large, and it would be interesting if some rosarian would check it and see of what these roses consisted and if any of the hybrids are still in existence at the present moment. It seems almost incredible that so many varieties were in existence before the American and Asiatic species had time to influence their breeding, for the great influx of rose species took place between 1790 and 1840, and some years must naturally pass before these would be used for hybridising purposes.

Since Loddiges' time, Paul and many others have perfected the shape and colour beyond all belief, although in the process of this perfection some of the fragrance has been lost. It is pleasant to think that old-fashioned roses are coming into fashion again and that there is a distinct vogue at the present time for the single. Far from the popularity of the rose being on the wane, it is increasing by leaps and bounds; the first order for plants that is placed for a new garden is invariably for roses. This love must be partly caused by inherited instinct, for no other country possesses a single flower of such national popularity. The Japanese, whose love of flowers must be as great as our own, apportion about half of their affection to the cherry and half to the chrysanthemum; but the rose allows no rival in our affections. For reasons of space or soil, some of us may not be absolutely successful with its cultivation and we may specialise in other plants, but that does not mean that we love the rose any the less. They are plants of quality which in their various forms are invaluable for every possible kind of gardening. We can never have too much of the rose as a flower for indoor decoration. We owe a debt of real gratitude both to the plants and to those who raise them. E. H. M. C.

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

SMALL GARDEN DESIGNS, by R. V. Giffard Woolley.

THE BREAKING OF TULIPS, by C. W. Needham.

THE AUTUMN TREATMENT OF LAWNS.

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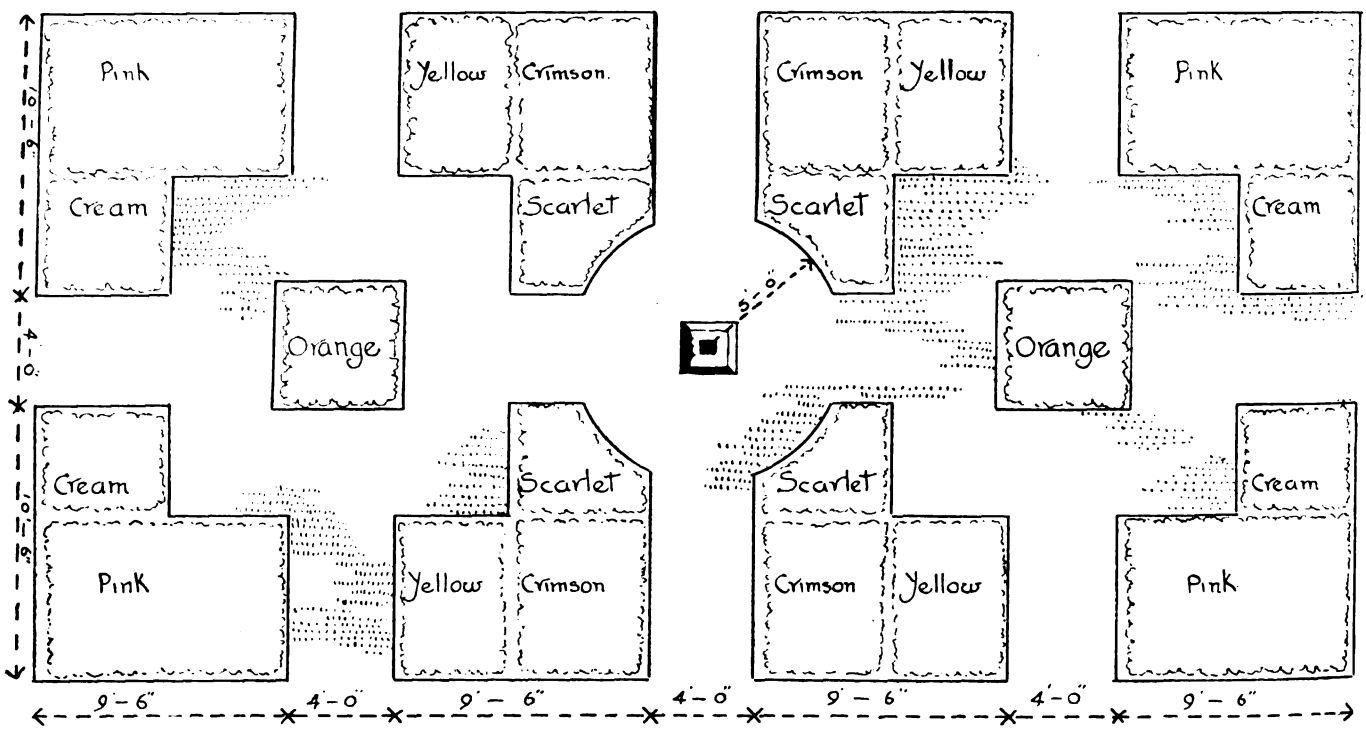
PLANNING & PLANTING A SMALL ROSE GARDEN

A GARDEN consisting entirely of roses is a practical and desirable proposition, but an English garden without roses is inconceivable. No other flower combines the almost infinite range of colour gradation with a flowering period lasting from early summer to late autumn, and a fragrance unequalled by any other occupant of the garden.

It is not always, however, that roses are planted to the best advantage. One sometimes finds them in scattered masses mixed with shrubs or herbaceous plants, or in curious-shaped beds dumped at random into odd corners of the garden, but this is not doing them justice. The rose possesses so many attractions and is in a class so entirely unique that it demands a portion of the garden to be devoted exclusively to its cultivation. Moreover, the rose is not a plant which cares to associate too closely with its neighbours. It has been called the Queen of Flowers, and it would appear from its objection to mixing with other plants that it realises its lofty position in the flower world and insists on that aloofness from common things which has always been considered, rightly or wrongly, to be a royal attribute.

There is a very strong argument in favour of making a rose garden one in which the lines are more or less formal, and this applies particularly to a situation where the area



is somewhat limited. Roses look at their best when grown in blocks or masses of one sort, and this little formal garden which I have designed to suggest a pleasant arrangement wherein at least twenty-two varieties of roses can be grown in such a way that each will assist the other by colour combination can be modified to suit an area somewhat smaller or considerably larger.

The total area occupied by the rose garden is 50ft. by 25ft., and a glance at the plan will show that it is possible within such an area to grow a very fine selection of roses. I always think that one cannot be too careful in combining the colours in a rose garden. Take, for instance, the crimsons and pinks. Planted side by side, these detract each from the other, whereas crimsons and pale yellows always unite perfectly. There is nothing to object to in the association of yellows and pinks, and the pinks and creams or very pale yellows make a very soft and happy combination.

In this little garden I am suggesting that the strong and warm colours are massed in the centre of the design, and thus we get four blocks of crimson connected to four of yellow, while in the interior they shade away to four smaller groups of bright scarlet. The isolated beds of orange will have the effect of keeping the central mass of warm colours to themselves. In the four L-shaped beds in the corners the pinks will be seen nearest the yellow, and will shade away to smaller groups of cream and very pale yellow.

If the area were a little larger, I should have preferred making the paths 5ft. wide instead of 4ft., because 5ft. allows two people to walk side by side, whereas 4ft. scarcely permits this. Also, if the area were a little larger the beds could be increased in size without destroying the cohesion of the elements forming the general design.

Now, a few words about the paths. In my design I have shown the whole of the rose garden lying in a lawn of mown grass, and there is not the slightest shadow of doubt that this is by far the most satisfactory effect, looking at it from the æsthetic point of view. If the garden is large enough to surround it as suggested in the plan by borders of either herbaceous plants or flowering and foliage shrubs, then any hard paths which are required can be placed outside these borders, but if the garden is so small that it is necessary to make dry paths inside this enclosure, I would restrict such an effort entirely to the surrounding path, that is, between the borders and the rose beds. I would urge strongly how important it is that this colour grouping should be seen, relieved by the cool green carpet of closely mown turf.

In such a design as is presented here it is necessary to introduce some central object, which can either be a garden ornament or a shrub, provided it is remembered that the shrub will grow, that the area is limited, and the choice must therefore be one which will not usurp the necessary width of path surrounding it.

With regard to the varieties which can be planted in such a garden, these would depend to a very great extent upon local conditions. There is no doubt whatever that some roses succeed better in some localities than in others, and in making the following suggestions of varieties suitable for such a garden I do so with the idea that many people will have their own preferences with regard to varieties, and some of the sorts I mention will be better omitted on account of the local conditions.

Crimson.—General McArthur, Etoile de Hollande, Lord Charlemont, Col. Oswald Fitzgerald, Hawlmark Crimson, Hugh Dickson and Hoosier Beauty.

Scarlet.—Charles K. Douglas, K. of K., Hortulanus Budde, Red Letter Day, Templar and Lady Maureen Stewart.

Orange.—Emma Wright, Sunstar, Independence Day, Irish Fireflame (single), Irish Elegance (single), Henrietta, Frances Gaunt, Flame of Fire and Lamia.

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Deep Yellow.—Mabel Morse, Golden Emblem, Christine, Florence L. Izzard, Mrs. S. K. Rindge, Mrs. Wemyss Quin, Sovereign and Rev. F. Page Roberts.

Pale Yellow and Cream.—Elegante, Harry Kirk, Miss Willmott, Mrs. Beckwith, Melody, Mrs. Henry Balfour and Nellie Parker.

Pink.—Mrs. Henry Bowles, Mme. Butterfly, Rose Marie, Mrs. Henry Morse, Mme. Abel Chatenay, Mrs. George Shawyer and Charles E. Shea.

Salmon and Cerises.—Lady Inchiquin, Los Angeles, Cheerful, Mrs. Redford, Lady Dixon Hartland and Betty Uprichard (orange and salmon pink.)

For such an arrangement as I have suggested the above is a sufficiently comprehensive list from which to select, but to say that it is even representative of all that is good in roses would be absurd. A dozen similar lists could be compiled, and the actual choice of varieties must therefore be a matter of personal taste.

GEORGE DILLISTONE.

THE POLYANTHA POMPON ROSES

THERE are few better bedding plants than polyantha pompon roses. Indeed, this class of rose can boast of almost every good quality required of a bedding plant. Brilliancy and diversity of colouring, a long season coupled with great freedom of blooming, excellent foliage, compact and upright habit and, in addition, absolute hardiness, an attribute not possessed by many so-called bedding plants.

Unfortunately, they lack, with few exceptions, the endearing quality of fragrance. This doubtless detracts from their value as roses, for a rose *should* give the sweetness its very name suggests. Gardeners, however, seldom ask for fragrance in their bedding plants. The popularity of the begonia, the dwarf single dahlia and the pentstemon proves this. To me, the heliotrope, the stock and the verbena are more attractive than the dahlia, the begonia and the pentstemon just on this account; and because I hold sweetness as a most desirable attribute in a flower and because of their comparative lack of form I cannot rank polyantha roses with teas or hybrid teas. Not that they are entirely exempt from fragrance. Among the whites several are honey-scented, notably Yvonne Rabier; and the pretty rose-coloured Ellen Poulsen has a refreshing sweet briar fragrance. Curiously enough, it is among the reds and crimsons that fragrance is entirely absent. But in spite of this drawback, when considering them as roses, they are extraordinarily useful and effective for small beds.

AMONG THE BEST OF THE POLYANTHA VARIETIES IS ROSE CORAL PINK.

ANOTHER EXCELLENT NOVELTY, ORLEANS ROSE, CARRYING LARGE TRUSSES OF DEEP ROSE PINK BLOOMS.

We planted last November on our front lawn a long, narrow bed with the single appropriately called Pink Delight. From June till the present time (mid-September) this bed has been one of the brightest spots in the garden. The dark olive green foliage sets off very charmingly the big sprays of clear bright pink blossoms, and the plants so far have been quite untouched by mildew or black spot. Immunity from diseases, such as mildew, black spot and stem fungus, is another great asset of these dwarf polyanthas.

Again, few varieties are much affected by rain, their blossoms for the most part being composed of small petals of good substance which soon recover from the effects even of heavy showers; this, naturally, adds very much to their value as bedding plants, especially as the season advances. There are one or two exceptions. The white Katherine Zeimet has rather papery petals which quickly turn brown if exposed to heavy rain. On the other hand, the charming Little Meg, also a white, has smooth, solid little petals which resist rain and keep their purity in quite bad weather.

Many of the so-called dwarf polyanthas, such as Leonie Lamesch and Yvonne Rabier, will grow into big bushes. Only last week we saw some plants of Leonie Lamesch in the late Canon Ellacombe's

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garden at Bitton covered with their reddish copper-coloured blooms, which were quite 5ft. high, and I have seen some of the fragrant white Yvonne Rabier in our president's garden in Canterbury which, from memory, I should say were even bigger. These are not the kinds to be recommended for bedding. In the Rose Annual for 1920 Mr. George Taylor has pointed out that there are certainly two distinct types of "poly poms," a tall and a dwarf-growing type. He instances Gloire des Polyantha (1888) as being in habit an ideal dwarf variety, and Leonie Lamesch (1899) as a type of the tall-growing kind. For small beds such as I have in my mind—beds on a lawn that will hold from nine to a dozen plants—it is to the really dwarf type we shall look.

During the last ten or twelve years quite a number of these have been introduced, but we can still do with a greater variety of colours. White, bright pink, rose and crimson are fairly well represented, and during the twenties an advance has been made in the introduction of such delicate shades of pink as those of Coral Cluster and Juliana. But we still want a really first-class yellow. Mr. Easlea's Gwyneth is a step in the right direction. It has fine foliage, makes good sprays, the flowers are sometimes bright yellow and are very prettily shaped in the bud. We have only a few plants of Gwyneth, but I am inclined to doubt whether it would make a really showy bed in the way that Mrs. Wemyss Quin or Christine does. Then, so far as I know, we have no "poly pom" with the large apricot tints of Los Angeles and W. F. Dreer, or the deep coral rose of Betty Uprichard and others. Nor, though we have, as I said before, some good crimsons, have we yet anything that can compare with the brilliant scarlet crimson of K. of K. or Red Letter Day. Therefore there is plenty of work for our hybridisers among this useful race of polyantha pompons. They have done so much for us in the past that one can feel confident their efforts will not relax till they have provided us with the many beautiful tints we are asking for, and let them also bear in mind that fragrance would add immensely to the attraction of these little bedding roses.

Before concluding these short notes I will add a list of those varieties we have found most useful for bedding purposes.

WHITES.

Anna Maria de Montravel.—Very dwarf.

Katherine Zeimet.—Dwarf and free.

Joan of Arc.—Sweetly scented and very free blooming.

Yvonne Rabier.—Sweet scented. Will stand pruning, but is more suitable for growing as a free bush.

Little Meg.—Prettily shaped flowers, glossy foliage.

LIGHT PINKS.

Coral Cluster and *Juliana.*—These two are very similar. As seen growing at Wisley, Juliana appeared to have a slightly better habit, and it is perhaps less given to sport. Both at their best are very pretty and delicate in colouring.

Perle Orleanaise.—Soft creamy pink, very dwarf.

BRIGHT PINK.

Dorothy Dix.—One of the newer varieties with rather large flowers for its class.

Ellen Poulsen.—Bright rose, one of the best, with prettily shaped, fragrant flowers. Excellent for growing under glass.

Mrs. W. H. Cutbush.—Clear pink, very pretty.

Orleans Rose.—Extra large trusses of deep rosy pink flowers.

Pink Delight.—Single, bright pink, very free, constant and effective. In some respects this variety is nearer the hybrid teas than the "poly poms."

CRIMSON.

Eblouissant.—One of the dwarfest and prettiest. Sprays of dark but bright crimson flowers. In foliage and colour it much resembles the Chinas.

Edith Cavell.—So far the best crimson "poly pom." Its fine trusses of dark crimson flowers keep their colour well except in very bright sunshine, when they are apt to "burn," but they do do not "blue.'

Kosters Orleans.—In habit very like Orleans, in colour a lighter crimson than Edith Cavell and with rather smaller trusses.

Reine Elizabeth is similar to Edith Cavell and as we have grown it, so much so that it hardly seems necessary to grow both varieties. The flowers are perhaps a little farther apart in the bunches, but they "burn" in just the same way as the older Edith Cavell.

Triomphe Orleanaise.—Bright light crimson with a touch of crimson lake, big trusses and almost constantly in bloom.

YELLOWS.

There is no really good yellow bedding "poly pom." *George Elger* and *Gwyneth* are probably the two best, but both have the failing that in bright sunshine the flowers lose their golden tints and open almost white. The old *Perle d'Or* has very prettily shaped buds of nankeen yellow, but it is not suitable for small beds and should be grown as a bush and only slightly pruned. The same remark applies to the pretty shell pink *Cecile Brunner.*

There are many other varieties, but I think those mentioned in my list are the best for general effect in small gardens. Possibly I should add the orange sport of Jessie—*Orange King.* It is a new break in colour, but to my mind the flowers are too stiff and button-like to be pleasing. WHITE LADY.

THE IMPORTANCE OF THE MODERN RAMBLER

WE have become so familiar with rambler roses in our gardens, that one can scarcely imagine how much we are indebted to the introducers of the lovely varieties that are met with on every hand. Yet the writer can remember the time, prior to the advent of Crimson Rambler and Dorothy Perkins, when one had to be content with the Ayrshire, sempervirens and Boursault roses to clothe arches and pergolas, and even to-day the beautiful old Félicité-et-Perpétue and Bennett's Seedling are much valued for their sweet aromatic fragrance, which, unfortunately, is lacking in many of the modern ramblers.

We must, however, not be too insistent in our desires for fragrance, providing we obtain compensations in a wealth of blossom and glorious foliage. It was a happy inspiration of our American cousins to use the procumbent species, Rosa Wichuraiana, as a seed parent, crossing it as they did with some of the lovely tea and hybrid tea roses, and, strangely as it may seem, the best of the modern ramblers are those that have R. Wichuraiana as their seed parent. One would have thought that by using some of the best of the modern kinds as seed parents there would be evolved even greater productions, but it is not so.

One of the most successful hybridisers, Mons. Barbier, assured the writer that his best successes were obtained from R. Wichuraiana as a seed parent.

That this is not an absolute necessity is evidenced by the fact that Dr. Williams obtained the very beautiful Emily Gray by crossing Jersey Beauty with the monthly rose, Comtesse du Cayla. Here we have a glorious yellow, the best to date, and one that bears flowers almost as large as a Mme. Ravary. When grown so as to form a sort of screen over a sunk garden the effect is a most telling one, and, in midsummer, the ultimate result is a glorious mass of golden buds and blossoms.

The fortunate individual who succeeds in raising a really golden rambler with clusters like Dorothy Perkins, will confer a lasting boon upon all rose lovers, for although Emily Gray is so very beautiful, there is not that profusion of blossom that one obtains with the Dorothy Perkins tribe.

The really essential requirement of a modern rambler is that it should yield huge clusters of flowers. Far too many of recent introductions fail in this. They have lovely colours, but the clusters are meagre and wanting in decorative effect. This is more noticeable in the yellow and orange shades.

Although Dorothy Perkins is met with on every hand, there is nothing more beautiful than a well clothed arch or pillar of this delightful rose. It is most gratifying to observe that the cultural hints so often mentoined in THE GARDEN have had good results, and even the novice is aware that he must not spare the pruning knife if he would have the best results from rambler roses. Many individuals who merely have a

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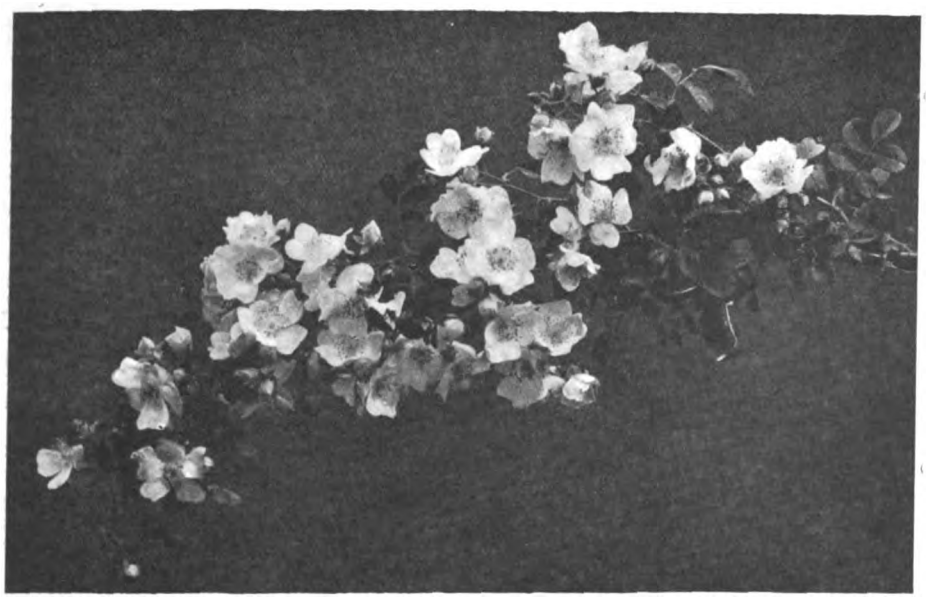

THE HANDSOME ROSE-PINK BLOSSOMS OF ROSE KEW RAMBLER.

small garden may have lovely pillars and arches of these roses if they are careful to cut away old growths freely. Even if only three or four good ripened young growths are retained, the grower is rewarded with those delightful long trails of blossom that charm the eye. Whereas if the plants are allowed to grow at will they soon become a tangled mass of growth with resultant small clusters of flowers and a wealth of mildew to boot.

I cannot impress upon my readers too much the necessity of preparing good large holes wherein to plant ramblers. They need a good depth of well worked soil for their roots so that growth is free and unchecked.

In preparing the positions for rambler roses it is essential to add some good manure to the lower spit of soil, so that when the roots commence to penetrate they will find a larder of nourishing food. I have found nothing better than Wakeley's Hop Manure. In these days of motor transit it becomes exceedingly difficult to obtain farmyard manure, but Wakeley's supplies just that humus and stimulant so necessary to vigorous growth.

I have found the best results follow its use when thus incorporated with the lower soil.

If used near the surface the rain dissolves it too rapidly and it is not advisable for newly planted roses to have strong stimulant until the new roots are formed, and even then it is better for the food to be below, then they can search it out as required. Amateurs should remember this, not only as regards Wakeley's Hop Manure, but all artificial manures.

Of course, when the roses are established then a top dressing of "Wakeley's" is decidedly beneficial.

Beside the usual arch or pillar, there are many ways in which rambler roses may adorn the garden, such as when budded on tall briars to form weeping roses or planted in a border and allowed to droop over walls. They are seen to great advantage when tumbling over banks by lakes and ponds, and for forming hedges, nothing can surpass their wondrous beauty. At Aldenham House Mr. Beckett has made a glorious hedge which is of considerable length. Not only do they serve the usual purposes of a hedge but in addition provide a wealth of colour and beauty.

Rambler roses can be profitably employed in the background of perennial borders. I remember some years ago the late Mr. Norman used the old Crimson Rambler to great effect in such borders, grouping the stately delphiniums near them, and there are innumerable methods of utilising modern ramblers. I have seen them flourishing in large kitchen gardens, lending a brilliant tone to what otherwise is a somewhat uninteresting feature of a garden, especially to the flower lover.

I think much of the beauty of ramblers is lost upon ordinary pergolas. The best method is to have a series of arches as at Kew and link up the arches with chains or rope and allow some of the growths to cover same. In this case one obtains the pillars of the arches well clothed and, of course, properly in view, but when an overhead density of growth is allowed, the pillars of the arches suffer thereby.

It is not so generally known as it should be that where the growths annually retained send out lateral growths, such laterals should be cut back to two or three eyes at pruning time in March. This results in far superior clusters of blossom than if these laterals are retained a good length.

I would urge my readers to avoid planting ramblers upon hot walls. Even the shiny leaved sorts, such as Albéric Barbier, are far happier upon an arch or pillar and the rougher leaved sorts, such as Crimson Rambler and Blush Rambler, are a terrible prey to red spider and mildew when planted near a wall.

Owners of large parks would do well to plant some of the lovely modern ramblers in clumps, and allow them to tumble over old roots or tree stumps. Even in the wild garden they are delightful, providing one selects a fine open spot which is exposed to the sun for the greater part of the day.

In conclusion I would just name a few of the more recent kinds really worth growing, for it is not necessary to go over the older varieties. The novelties are Jacotte, Albertine, Violetta, The Beacon, Chastity, Ile de France, Romeo, Clematis, Mary Wallace, Dr. Robert Hucy, Fraicheur, Snowflake, Yvonne, Beauté Orleanaise, Kew Rambler, Purity, and, of course, Paul's Scarlet and the delightful Mermaid.

WALTER EASLEA.

Leigh-on-Sea.

SHOWING THE IMPORTANCE OF THE RAMBLER IN GARDEN EFFECT.

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SWEET PEAS: ADVANTAGES of AUTUMN SOWING

IN the spring one occasionally finds a sweet pea plant growing on land on which sweet peas were grown the previous year. Such plants are, of course, "self sets" from seed which fell to the ground and germinated during August, September or October. Nature evidently intended the sweet pea to perpetuate itself by an autumn germination of its seeds, and certainly the stray "self sets" invariably impress one with their very robust and "hard as nails" appearance.

It is now generally recognised that, on the whole, particularly in the southern half of the British Isles, autumn-sown plants give better results than those from a sowing in the early months of the year. They not only bloom much earlier and grow away more readily, but often continue to flower weeks after the spring-sown have finished. Their colours are more brilliant, and through a hardier, stronger constitution and much more extensive root system they withstand adverse weather conditions to a greater extent. In my opinion one of the greatest advantages of autumn-sown plants as compared with spring-sown is the facility of the former to ward off attacks of disease during the flowering period. So-called "streak" is undoubtedly more frequently met with in spring-sown sweet peas.

There would be fewer failures and disappointments among amateur growers if sweet peas, speaking generally, were given more hardy treatment. "Coddling" in any shape or form is well-nigh fatal.

SOWING IN THE OPEN GROUND.

In the first place, I cannot recommend this method where expensive seeds are concerned: it is a little too risky; but a good mixture of the better Spencer varieties, such as may be purchased at about 1s. per ounce, will yield very pleasing results nine seasons out of ten if sown where they are to flower. An ounce will make a thick hedge 8yds. or 10yds. long if sown in drills made with a hoe 1½ins. to 2ins. deep on ground that has previously been deeply dug, or trenched, and liberally manured. If two or more rows are required, allow at least 5ft. between them. After sowing the seeds and covering them in, dust a dressing of soot on the surface. Any time between the end of September to the third week in October will suit most districts for sowing, and the quantity of seed mentioned will allow for depreciations by slugs, birds, etc. It will be a simple matter to thin out if necessary in the spring. When the seedlings appear, birds may be troublesome in some districts, and these can be warded off by means of the well known wire pea guards, or by stretching strands of black cotton just above the plants. Lime, old soot or finely sifted ashes sprinkled along each side of the rows will check slugs and snails. It is wise to give the young plants some measure of support about the beginning of December, and this may conveniently be done with short sticks or twigs about 1ft. high. They will be all the better for this support, for if left to blow about, frosts are more likely to cut them at the base where the haulm has bent over. The sticks themselves afford no small degree of protection.

This is the method usually practised by market growers of cut bloom who sow in the open fields, allowing about 1lb. of seed to every 100yds. run of row. In the Midlands they commence picking their flowers about the last week in May.

SOWING IN POTS OR BOXES.

The majority of successful growers and exhibitors sow in pots or boxes in a cold frame between the last week in September and the last week in October. Any good porous soil that is not too rich will do admirably as a potting medium, and in many cases well decayed leaf-mould and silver sand may be mixed in with advantage. I generally use 48-sized pots, but smaller sizes will do just as well. Boxes should be about 6ins. to 8ins. deep. Crock the bottoms of the pots and make drainage holes in the boxes, and sow about ½in. deep, allowing roughly two to three square inches of surface space to every seed. Some of the black-seeded varieties have hard, flinty seed-coats, and these should be slightly chipped with a penknife or file to ensure an even germination. If the potting soil is fairly moist an immediate watering is unnecessary. Avoid over-watering, or some of the white-seeded and wrinkled varieties may rot during germination, particularly if the weather is cold. On the other hand, do not allow the soil to become dry. Rolling the seeds in red lead or soaking them in paraffin to prevent the annoying attentions of mice I cannot recommend. The best and safest way is to set a few of the little "break-back" traps baited with bacon-rind, bread or cheese, on the top of the pots or boxes directly they are sown. Mice will not prove a nuisance after the seedlings are an inch high.

Plunge the pots in the cold frame to their rims in soil, peat or coal ashes, to conserve moisture and keep frost from their roots. Leave the glass frame-lights on until the young plants appear through the soil, then remove them entirely and never replace except during very wet or frosty spells. Even during very hard frosts, prop up the lights about 6ins. at the bottoms during the middle of the day. *The great secret of success in autumn sowing in cold frames or a cold greenhouse is to grow the young plants along very slowly and hardily, giving all the light and air possible* and only enough water to keep them going.

A few short twigs will keep the plants upright, for if allowed to blow about they readily rot off near the soil level where they bend. Prevent the attack of birds by throwing fish netting all over the frame. Many good growers pinch out the tops or growing tips of the seedlings when they have made their third pair of leaves. This keeps them sturdy and causes the growth of strong basal side shoots.

Hardy treatment should be one's aim, for "drawn-up" spindly specimens, the result of "coddling," will never be worth their garden space. C. H. A. S.

(To be continued.)

NOTES OF THE WEEK

THE EMBANKMENT GARDENS.

Because I travel on the District Line
My thanks are offered for a gracious thing,—
The gardens of the Rail, where—thought divine!—
Some happy hand has found a flower to fling;
Beyond the tired faces out from town,
I see them streaming past me, green and brown.

Congratulations, gard'ners, on your beans,
Your honest cabbage, and your marrows there;
But most because you flanked your winter greens
With beauty,—that you found the space to spare.
For, while the packed compartment reels and rocks,
My heart is happy with your hollyhocks!

DOLF WYLLARDE.

HARDY FUCHSIAS.

AN ANSWER TO MR. CAHEN'S ARTICLE CALLED "A PLEA FOR THE FUCHSIA."

IN some parts of the country it would be unwise to state that fuchsias are hardy, but in many districts they will succeed and form quite large bushes. Around Chepstow, on the borders of Monmouth and Gloucestershire, some fine examples can be seen, especially in cottage gardens, where they are allowed to develop and attain a height of eight or more feet. Certainly they deserve to be given a trial in many more gardens, as few plants make a more brilliant display in late summer and autumn than the shrubby forms of the humble fuchsia. They are laden with flowers, and even the buds are most conspicuous, and add considerably to the beauty of these plants. They are also useful as cut flowers, and this autumn I have seen some pretty dinner-table decorations which consisted entirely of Fuchsia gracilis. Although they are useful in the shrubbery border, a bed is much more effective; isolated specimens in the rock garden add a note of gaiety at a period when brightness is at a discount. There is no question about their cultivation; they will succeed in almost any soil; but if there is a doubt about their hardiness, a sheltered position should be chosen. In many districts they will be killed to the ground during the winter months, but, unless the weather is very severe, shoots will appear from the old stools in the spring. These growths will attain a height of several feet, and flower freely so long as the weather is open. Perhaps the most useful of all is F. Riccartoni; certainly it is one of the hardiest, and it bears a profusion of brilliant red flowers on twiggy growths, and remains in full beauty for many weeks. It is said to be of hybrid origin. A South American species is F. macrostemma. It has a rich scarlet calyx and purple petals, and there are also

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BUTTERFLIES ON SEDUM SPECTABILE.

many forms of this desirable plant, such as gracilis (with its slender red stems and bright crimson flowers) and corallina.

A tiny creeping fuchsia is F. procumbens, suitable for the rock garden, the blue berries being a distinct feature of this plant. It would be interesting to know if anyone has succeeded in raising hybrids in which this species figures as a parent.—T. W. BRISCOE, *Chepstow*.

CLETHRA ARBOREA.

I HAVE visited many good gardens in the south and west of this country, where many tender and choice flowering shrubs are well grown and cared for. But rarely do I find that lovely sweet-smelling evergreen shrub Clethra arborea among those collections. While agreeing that it is rather a tender subject and not suitable for general planting, yet I feel sure it is far hardier than many lovers of choice flowering shrubs conceive, and if given the protection of a wall would succeed in many places where least expected. There are two very fine plants growing in these gardens, one facing south, the other occupying a south-west position, and both plants have passed through several winters unprotected and rarely fail to blossom freely. The flowers resemble the lily of the valley, and are produced in June and July. They thrive in rich loamy soil with the addition of leaf-mould or peat. Cuttings taken from half-ripened wood during June will root freely if inserted in sandy soil and placed in a cold frame.—F. W. RICH, *Plympton*.

COUVE TRONCHUDA

(THE PORTUGAL CABBAGE).

I AM missing Couve Tronchuda from gardens where it was once grown, and wonder whether its culture, like that of the colewort, has not been abandoned. It cannot be said of it that it was ever very popular, and one is surprised at this, considering that it comes to perfection in October, when the last dish of runner beans has been gathered, and before one feels disposed to commence with winter greens. I fear that the average gardener, who may not have made the acquaintance of Couve Tronchuda, loses sight of the important fact that nearly all the leaves are edible and make an agreeable dish when properly cooked. It takes up more room, it is true, than most of the brassica tribe, but against that one must bear in mind that practically all the leaves are serviceable. It will not stand hard frost for long, but one may rely on it cropping up to about Christmas. People to whom I have given a sample for the table express themselves as satisfied, and ask why it is that greengrocers do not offer the vegetable for sale. That is another point which needs elucidating! If catered for, would not the supply of this very useful autumn vegetable create a demand for it? I am inclined to think so!—CLAREMONT.

BUTTERFLIES ON SEDUM SPECTABILE.

THE accompanying photograph was taken in my garden at the end of September last year, and represents an extraordinary picture. For a period of about a fortnight, during every spell of sunshine, the plants of Sedum spectabile were visited daily by dozens of gaily coloured butterflies. At one time twenty-five were counted on one plant alone, some with their wings outspread, some gently fanning in the sunshine, others quietly at rest. The commonest visitors were the gaily variegated Tortoiseshells, closely followed by the velvety Red Admirals, while there was usually at least one Peacock among the guests. After crawling over the flower-heads sipping nectar all the time, they would flutter across to the stone path, seemingly half drugged, and there bask in the sunshine, only to return in a little while to the scene of the feast.—W. WILLIAMS, *Barry, Glamorgan*.

ARALIA CHINENSIS.

ARALIA chinensis was one of the earliest of Chinese shrubs to be introduced into England and was described and named by Linnæus. It is undoubtedly one of the most ornamental of all shrubs of large foliage, and is common in gardens and public parks—it is often grown in London squares—and so requires no advertising. The long arching pinnate leaves are always decorative, and the large panicles of small white flowers are an added attraction in August and September, when flowering shrubs are few and far between. There are several varieties in cultivation, among the most common being var. mandschuricus, sometimes known as Dimorphanthus mandschuricus. The object of this note is not to advertise a plant that is already well known, at least in the south, but to point out that I do not agree with the dictum of almost every writer on shrubs, that it is of doubtful hardiness. In my garden in Perthshire it is almost a curse. It was originally planted many years ago in a sheltered position, according to instructions, and its suckers, which are often 6ft. away from the parent, have to be rooted up every second year. It has reached a height of 14ft. or 15ft., and, although handsome, tries its hardest to strangle its neighbours. Some of the suckers have been removed to an exposed position which is exceedingly dry in summer, and are still thriving. It is, indeed, an admirable plant for the wild garden, where it can sucker away to its heart's content; but it is dangerous to plant it in a sheltered position where space is valuable. Undoubtedly aralias take a long time to establish themselves. I have another species, F. 1428, collected from comparatively low down in Burma. For four years it was cut down to the ground every winter, and several times was almost consigned to the rubbish heap as being too tender. Last year it suddenly shot away: the stem survived the winter without protection, and now it is nearly 6ft. in height. It has taken four years to acclimatise itself. Perhaps similar experiences have led to the doubt of the hardiness of Aralia chinensis.—E. C., *Perthshire*.

HELIANTHUS SPARSIFOLIUS VAR. MONARCH.

PROBABLY the usual name in our British catalogues for this fine plant is simply Helianthus Monarch. I am told that it is identical with, or very similar to, one which Cannell introduced under the name of sparsifolius and which, for a considerable time after its introduction, enjoyed a well merited popularity and then became neglected. I have had my eye on it now for three years and, although I have not grown it myself, I have seen it growing and I have seen it in

THE WHITE PLUMES OF ARALIA CHINENSIS.

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ONE OF THE LARGEST AND OLDEST SPECIMENS OF THE ETNA BROOM.

a cut state at exhibitions. On every occasion I have made a point of asking all about it, with the result that I feel qualified to tip the bit of knowledge without which it will be a failure. It is essential to take up and replant the young growths which appear round the base of the old plant every spring. This is the only way to keep it, and its neglect means that we will lose it. It is worth the trouble, although I feel bound to say that its six or eight feet of height makes it unsuitable for every garden. But, be the garden big or be the garden small, wherever cut flowers are in request there should Monarch be. It is supreme among its relations for this purpose. The darkish disc and the big soft yellow incurving ray florets are just "it." I know no more delightful shade of yellow in any sunflower, and there is no better laster.—JOSEPH JACOB.

GENISTA ÆTNENSIS.

THE above illustration shows Genista ætnensis, which must be at least one hundred years old. The tree is over 20ft. high, and has a spread of some 30ft. and is growing at Howick, Northumberland. It is a wonderful sight when covered with blossom every August.—LADY MABEL GREY.

ROSES FOR A NEW GARDEN.

"WHAT kind of roses would you suggest for my new garden," was the pith of a question put to me a few weeks ago. On the face of it the enquiry was a very simple one, yet, on reflection, it was not so, for getting together a collection of roses is, in some respects (or should be), like purchasing pictures, inasmuch as we have to live with them, and they become companions over the years. In these circumstances, taste must predominate, and, therefore, we should choose with care. After all, roses in a garden serve a dual purpose; they bring in their train beauty and sweetness, and these are transmitted to the home through the summer and often far on into the autumn in the blooms we gather. If we have had previous experience, we shall assuredly linger over the names of hybrid teas, selecting those which have proved themselves generally serviceable, leaving out of our purview those which are comparatively unknown to us, or, in regard to which we have had no recommendation. It is not always advisable to be "carried away" with varieties we may have seen staged in superb form at some exhibition—varieties that are eulogised in the nurseryman's catalogue, which have probably been grown under special conditions for show purposes, and are beautiful as such, but are not suitable for general growing. We shall do well—nay we cannot go wrong—if we limit our selection to sorts of proved worth, in whatever class they may be found. Further than this, I would advocate confining the collection to fewer varieties, say three or four of each, rather than for the sake of being able to point to many trees with perhaps, only one or two of each. The reason for this is, that planted in groups of three or four of one variety, the effect in a garden is considerably enhanced, and, at the same time, it gives one greater latitude in carrying out any scheme of table decoration when we gather the blossoms. As an illustration—and I choose hybrid teas for this, I would be disposed, however many trees I purchased, to triplicate at least sorts like General McArthur, crimson; Ethel Somerset, shrimp pink; Ophelia, salmon flesh, shaded rose; Mrs. Henry Morse, bright rose; Mme. Abel Chatenay, carmine, shaded salmon; Golden Emblem, deep yellow.

These have proved their worth, and are possessed of delightful fragrance. Again, bearing in mind the service of roses in the home, I should be disposed to include at least a few singles, such as Isobel, carmine red; Mrs. Oakley Fisher, orange yellow; and Irish Beauty, white.

Although the section of hybrid perpetuals is a small one, it contains varieties having a long service, blossoms full and rich, and—most of them—sweetly scented withal. Such are old worthies like Mrs. John Laing Captain Hayward, Fisher Holmes and Mrs. R. G. Sharman Crawford. If Frau Karl Druschki—a recent introduction as compared with the aforementioned—only possessed fragrance, surely it would stand out as the very best all-round pure white, for it is a most continuous bloomer!

The modern garden, however, is incomplete if it does not possess climbers. It is so easy to overdo this in the construction of pergolas and arches as to injure, by taking away the light, other subjects in the borders underneath, which bring their quota of beauty and pleasure in their respective season. Rambler roses like Blush Rambler, Excelsa and Minnehaha, while exceedingly attractive in the time of blooming, are a fugitive race, and their beauty is soon over. I think this is becoming appreciated more, as one finds many of the climbing forms of Caroline Testout, Lady Ashtown and Richmond being planted where once members of the Wichuraiana held sway. In the matter of planting climbers, one should proceed with caution. In getting together a collection for a garden, however small, only those which merit purchase should be considered.

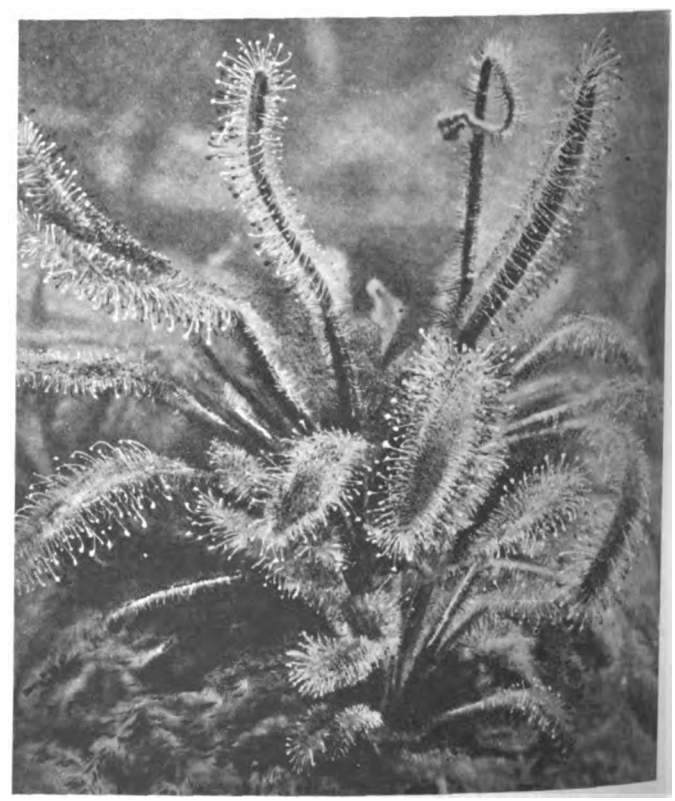
As we should select an artist's work—a picture which rivets our attention—or choose a piece of china with discrimination, so, in a measure, we should select our roses—by degrees, rather than become possessed of a collection of which we have little personal interest or knowledge.—W. LINDERS LEA.

CROCUS LONGIFLORUS VENUSTUS.

THIS little crocus, one of a number of charming seedlings for which we have to thank that lover of the genus, Mr. E. A. Bowles, is now in flower here (October 1st). The general colour of the flowers is a pale rosy mauve, the least glimmer of sun or accession of warmth bringing them fully out and disclosing the fascinating internal purple marking and feathering, well set off by the scarlet stigmata, while they exhale a sweet almond-like perfume. It is perfectly hardy and withal a strong and prolific plant. —EAST SUSSEX.

THE CAPE SUNDEW.

ALTHOUGH sundews are very interesting plants most of the species are somewhat insignificant in their habits of growth. The Cape sundew (Drosera capensis) is a really striking plant with comparatively large leaves. The flowers, which are of good size, are of a bright purple colour. The Cape sundew is of easy culture and will thrive in a compost of living sphagnum and a little peat. The leaves are amazingly good fly-catchers and, even in a greenhouse, will secure many insects.—S. LEONARD BASTIN.



DROSERA CAPENSIS, THE CAPE SUNDEW.

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THE BEST EVERGREEN CHINESE BARBERRIES

THERE ARE FEW GENERA IN SUCH A STATE OF CONFUSION AS IS THE BERBERIS. IN THIS AND FURTHER ARTICLES MR. SCHNEIDER WILL CLEAR UP MANY DOUBTFUL POINTS.

AMONG Chinese berberis (exclusively of Mahonia) there are quite a number of evergreen species. Among them are a few that are quite hardy even on the Continent, and can be used there in about the same way as Berberis

ONE OF THE MOST HANDSOME OF BARBERRIES, B. GAGNEPAINII.

BERBERIS JULIANÆ.

stenophylla in England. None of them has, however, such beautiful flowers as this well known hybrid.

The first evergreen barberry that was sent from China to Europe was B. pruinosa, which Père Delavay, the great French explorer of the flora of some parts of Yunnan, sent to the Jardin des Plantes at Paris in 1894. I have often met with this species in the vicinity of the Likiang Range, where it flowers in the spring, often so early that the flowers are almost destroyed by the frost. In habit it is rather similar to the deciduous B. aristata, but the leaves of pruinosa are thick and leathery, and bluish white beneath. The flowers are of a clear yellow, but I have never seen them produced profusely. The berries are densely covered with a whitish bloom. I do not know of any large plants on the Continent, and I do not think that B. pruinosa is even as hardy there as B. verruculosa.

In 1898 another French missionary, Père Soulié, sent seeds of a different evergreen species, B. sanguinea, to Mr. Maurice L. de Vilmorin. This species flowered at Vilmorin's famous shrub collection at Les Barres for the first time in 1902. It comes from western Szechuan, and from what I have seen of it in European gardens, as well as at the Arnold Arboretum, I consider that it is quite hardy in a somewhat sheltered position. It has small, very stiff, linear leaves and greyish branchlets. The name sanguinea refers to the reddish colour of the outer sepals.

In the same year as B. sanguinea, or maybe even a year earlier, another species was sent from eastern Szechuan to Mr. de Vilmorin by Père Farges. This species had been detected by E. H. Parker in 1881, and Hance had given to it the name B. stenophylla, overlooking the fact that this name had already been used by Lindley for the hybrid mentioned above. In gardens this berberis was called B. levis, but so far as I know the true levis has not yet been introduced at all, unless Mr. Forrest sent some seeds home during one of his last expeditions. It is a rather local species from Yunnan, while B. Soulieana, as I called Hance's plant, seems to be widely distributed through Szechuan, Shensi and Kansu. It has once been confused with B. acuminata, another rare species from Yunnan that has not yet been introduced so far as I know, the B. acuminata of the gardens being mostly B. Veitchii, which is mentioned later. The true B. Julianæ at the first sight resembles a good deal B. Soulieana, and is as hardy as this fine species or may be even somewhat hardier. But so far, I have never seen large, well grown specimens, and I suppose B. Soulieana is inferior to B. Julianæ from a horticultural point of view.

In 1894, Père Farges sent another berberis to Vilmorin, which first was identified by Mr. Bois with the variety pallida of B. Wallichiana. Wallich's barberry is a Himalayan species, and extremely rare in cultivation. (I only once saw it in the Golden Gate Park at San Francisco.) But this name is mostly used for B. Hookeri. The Chinese plant has nothing to do with B. Wallichiana, and I, too, mistook it at first for a variety of B. Hookeri, calling it var. candidula on account of the snowy white under-surface of its leaves. After I had seen the plant in Vilmorin's collection I at once recognised it as a new species in no way connected with the real B. Hookeri, and it bears the name B. candidula. It is of an almost prostrate, dense, neat habit, and forms small slowly growing bushes best suited for the rock garden. In 1907 it was also found by Wilson in Hupeh, and he sent it to Veitch.

The first evergreen barberry that Mr. Wilson sent to Europe on his first journey in 1900 was B. Veitchii. It has only been found once by him in Hupeh. Veitch raised some plants from seeds, and distributed them under the name

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B. acuminata already mentioned above. I have seen good plants of B. Veitchii in several gardens on the Continent, as well as in England. It is a very interesting hardy species, and forms loosely branched bushes with rather straight branches which are distinctly purplish when young. The long, narrow leaves are almost twice as broad and smoother and longer than those of B. Gagnepainii. The main feature is the rather large and pale yellow flowers standing in clusters of four to six or even eight.

In 1903 Wilson found another fine evergreen species in Szechuan. It has been figured in the *Botanical Magazine* on Plate 8185 as B. acuminata, which is, as explained above, quite a different plant. I named it B. Gagnepainii, and Mr. Bean is right in saying that it is one of the most promising of the barberries which Wilson introduced from China. Its habit and the leaves are shown in the accompanying illustration. The leaves are rather dull green, but the bright yellow flowers are not very showy. It looks its best in autumn when covered with its blue-black fruits. The bushes rarely grow more than 6ft. in height, and the greyish yellow branchlets are sometimes covered with tiny pustules similar to those observed on the branches of B. verruculosa, but by no means so significant. This species and B. Julianæ are, in my opinion, the two hardiest and probably the most ornamental of all barberries that we have received from China.

In 1903 Wilson found in the mountains of western Szechuan another very handsome barberry, of which he sent seeds to Veitch in 1904. It was B. verruculosa, a plant well marked by its verruculose branchlets, its small leaves with recurved margins and few spiny teeth being very shining and dark green above and more bluish green beneath. The flowers are of a beautiful golden yellow, and the fruits violet-black. It forms dense bushes 1–3ft. high. Unfortunately, on the Continent it is not so hardy as B. Gagnepainii or B. Julianæ, but it stands our winters well in a sheltered corner, where it cannot be injured by the sun and by cold winds in winter.

B. VERRUCULOSA, A NEAT-GROWING SHRUB

In 1907 Wilson was extremely lucky as regards berberis, and sent from Hupeh to the Arnold Arboretum no fewer than three fine evergreen species—B. Julianæ, B. Sargentiana and B. triacanthophora. The first one is the hardiest of all evergreen barberries I know of except, perhaps, B. buxifolia. B. Julianæ, as our picture shows, forms dense but graceful bushes up to 8ft. in height. The best plant I have seen on the Continent stands in the famous park of Prince Liechtenstein at Eisgrub, Moravia. It is not mentioned by Bean because at first in the Arnold Arboretum B. Sargentiana was believed to be the hardier species. Both look similar at first sight, but the young branchlets of B. Julianæ are pale greyish like those of sanguinea, while those of B. Sargentiana are reddish. The leaves of the latter are not quite as firm. The fruits of B. Sargentiana are almost black, and more broadly egg-shaped, not partly pruinose and ellipsoid as in B. Julianæ. The third species alluded to above, B. triacanthophora, is very different from the last two. It has been confused with B. sanguinea on account of its very narrow leaves, but it may easily be distinguished by its reddish and rounded branchlets, which are somewhat angular and greyish, as in B. sanguinea. The leaves of triacanthophora are less stiff, rather flexible and more finely serrate. According to Wilson, it reaches a height of 5ft., and the flowers are red outside as in B. sanguinea. According to my own observations, B. triacanthophora is not less hardy than B. Gagnepainii, but I have not yet seen large, vigorous plants.

Two very hardy species seem to be B. atrocarpa and B. Bergmanniæ, both found by Wilson and sent to the Arnold Arboretum from western Szechuan in 1908. B. atrocarpa was first taken for B. levis, and is mentioned by Bean under this name as a promising, vigorous evergreen. It is still rare even in English gardens, and it is similar to B. Soulieana, but well distinguished by its jet black, at first rather reddish fruits. Of B. Bergmanniæ the best plants I have seen are in the gardens of the Royal Horticultural Society at Wisley, where quite a number of evergreen as well as of deciduous species and forms of berberis may be met with. It has very firm and stiff leaves, resembling a good deal those of B. pruinosa, but are not distinctly pruinose beneath. Otherwise B. Bergmanniæ is more closely related to B. Julianæ, and apparently not less hardy and ornamental than this plant.

It would be very interesting to introduce B. levis and B. acuminata so as to be able to compare well grown plants with such species as B. Bergmanniæ, B. Veitchii and others mentioned above.

There are more evergreen barberries in China which we at present only know from herbarium specimens. They are all worthy of introduction, and I am sure that in years to come these evergreens will play a very important part in our gardens.

CAMILLO SCHNEIDER.

AUTUMN FLOWERS AT VINCENT SQUARE

THE display at the Royal Horticultural Society's Hall at Vincent Square on October 6th last, on the occasion of the ordinary fortnightly meeting of the Society, was indeed representative of the season of the year. In fact, the array of bright colour and bloom exceeded expectation. Michaelmas daisies predominated, while following close behind and providing a more vivid colour display were the roses, dahlias, chrysanthemums and gladioli. Berried and autumn tinted shrubs were present in variety and attracted much attention, while collections of fruit and vegetables were also staged and greatly appreciated.

Exhibits devoted to shrubs nearly always prove a source of unfailing interest. They show such an infinite variety in flower, fruit and foliage, and are so distinct in appearance and can be put to such an endless variety of purposes in the garden, that their popularity is not to be wondered at. Messrs. Waterer, Sons and Crisp's collection will do much to extend the popularity of shrubs in general and more especially of the genus berberis. What an infinite number of forms this family contains. In Messrs. Waterer's collection such species as B. Stapfiana, concinna, Coryi, Gagnepainii and aggregata were present and provided a brilliant display of scarlet and green. Another striking shrub which is excellent in fruit was Euonymus vedoensis. This looked well backed by the brilliantly autumn-tinted Rhus typhina laciniata and Liquidambar styraciflora. Pernettya mucronata, Dabœcia polifolia and others of the heath family, such as Erica Searlii, contributed to a very fine collection, which included in addition several handsome

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specimens of conifers, embracing a Taxodium sempervirens with light glaucous foliage, and one or two interesting junipers from Asia.

Messrs. Cheals also staged a fine collection, which included Desmodium penduliflorum in full flower. An interesting trio of snowberries were shown, embracing SS. racemosus, lævigatus and mollis. The differences were most marked. A dash of bright colour was supplied by the shining scarlet berries of Ilex pyramidalis; while autumn tints were provided by the inclusion of Kœlreuteria paniculata, Cornus sibirica, Acer japonicum laciniatus and Pyrus discolor. This year especially, autumn colouring in fruit, foliage and stem is exceedingly good, and is probably in no small measure due to the open weather which we are experiencing and to the fact that the wood is having a proper chance to ripen thoroughly.

Autumn and asters are upon us, and this Show came at a date when Michaelmas daisies were at perfection. On examining the stands one was struck by the considerable variation which the same variety showed when grown by different people. Snowdrift, for instance, was only moderate in size and form when shown by some firms, whereas on the stand of Mr. T. Bones it could be described as one of the best of whites. That intense blue aster, Ultramarine of the Amellus section, seemed to vary with different treatment and soil. King George and the Ballard family, Anita, Margaret, Percy, Rachael and Ethel, were everywhere. Mr. Ernest Ballard's stand was a mass of them. Margaret Ballard is a lovely variety with large semi-double flowers of bright rosy mauve. Powder Puff was one of the newest of Mr. Ballard's asters. It is a dainty arrival, attractive in colour and form. A variety such as Little Boy Blue will be hard to beat and, together with Pink Lady forms the perfect pair of dwarf daisies. Queen of Colwall, October Dawn, Duchess and Freedom, on Mr. Ballard's stand, could not be passed by unnoticed.

Mr. H. J. Jones made an effective stand with bold groups of asters and helianthus, the bright yellow of the latter forming an attractive contrast with the mauve and blue asters. What a fine Amellus variety is Rudolf Goethe with its huge lavender blue flowers. Mr. Jones had some excellent sprays of it. Beauty of Colwall, Aldenham Pink, Nancy Ballard, Maid of Athens and Countess were some of the most striking of the Novi Belgii section shown by Mr. Jones.

Messrs. Waterers had the only ground group of Michaelmas daisies. Dick Ballard was, perhaps, the most outstanding variety; but it was hard to choose the best from among a group of such well known specimens. Namur had pretty soft pink flowers, Ethel Ballard a well shaped spike, and Mons was another single of the rosy tone. Beauty of Ronsdorf was a fine Amellus.

Barr's Pink, on the stand of its raisers, quite outshone any other variety. Its large bright rosy pink flowers are semi-double and well set off by the conspicuous centres of gold and bronze. Many other good varieties, such as Dick Ballard, Mons, Heather Glow and the Amellus variety Mrs. Perry, were also shown by Messrs. Barr and Sons.

Mr. W. Wells, jun., had a fine collection. Robinson, V.C., October Dawn with its mass of lilac mauve flowers; Grace Sweet; a distinct dark blue; Brightest and Best; and Blue Gem were shown by this firm. Mr. T. Bones had several noteworthy varieties, one being Perky, an attractive addition to the Novi Belgii section. It is dwarf in habit and compact, and the colour is pale rose. Kate Bloomfield, one of the best of the Novæ-Angliæ section, was also shown; and Mother-o'-Pearl, a soft mauve single, attracted much attention.

The Orpington Nurseries had a varied collection. Cloudy Blue, with its pale, semi-double flowers of lavender blue, was among them. Michaelmas daisies of all types were well shown by Messrs. Rich and Co., Messrs. B. Ladhams and Mr. Marcham. Mr. F. K. Wood had several good asters of the Amellus section, such as King George and Rubellus. The strange semi-double opal-grey flowers of the variety Grey Lady were shown by Messrs. Rich and Co. The ray florets of this variety are very long and loosely arranged. Among kniphofias and various hardy plants Mr. Amos Perry staged some fine asters, such as Rachael Ballard, Royal Blue and Ethel Ballard, typical members of the valuable family of Michaelmas daisies.

The chrysanthemums were a strong feature of the Show. Mr. J. W. Forsyth of Putteridge staged a choice collection of varieties, all grown in the open without protection. All the blooms were in excellent condition and provided a bright colour scheme. Included in the exhibit were such sorts as Almirante, of chestnut crimson colour; Bronze Normandie; Cream Masse; Pink Delight, with large flowers of a clear pink tone; and October Yellow. The flowers were all carried on stems about 2ft. high and appeared very floriferous.

A very fine exhibit of double and single sorts was also staged by Messrs. Keith Luxford, whose name needs no introduction to chrysanthemum lovers. Included on their stand was the excellent white Framfield E. White; Goldfinder, of a rich golden yellow; J. Bannister, lemon yellow; Pink Profusion; and Uxbridge Pink. On Mr. Yandell's stand such varieties as Waterwitch, which is a very fine white single; Red Almirante; Salmon Profusion; and Knaresboro' Yellow were shown to full advantage and all looked in good condition.

For this time of the year, the roses which were on show were really in excellent condition. Each exhibit was as good as its neighbours. All the leading rose growers staged fine collections, including all the well known varieties. The colours of the blooms were very fine, while the petals of the individual flowers showed little or no sign of damage by early frosts. The following firms were exhibiting roses: Messrs. Easleas; Messrs. D. Prior; Messrs. Pemberton; Messrs. Harkness; Messrs. B. R. Cant; Mr. Elisha Hicks; Mr. George Prince; and Messrs. Chaplin Brothers.

Only a few alpines were shown. Messrs. Maxwell and Beale exhibited their new seedling of Erica vagans, Mrs. D. F. Maxwell, with the older and paler variety, St. Keverne. Both have the same quality of brownish pink without any tinge of purple that is almost peculiar to these heaths, and they go very well together. The fine old pink Donizetti, a curious dull red with a darker centre, was still blooming freely; beside it was the even older double Colchicum autumnale, rather ragged and untidy in its excessive doubleness.

Messrs. F. G. Wood made a charming little autumn garden of dwarf conifers and late blooming alpines; Colchicum byzantinum, thrusting up its clear lavender pink goblets through the grey green sprays of Juniperus tamariscifolia; Potentilla fruticosa Farreri lighting up with its clear buttercup yellow the sombre purple of Pentstemon Kellermanii; and Chelone Lyoni, with odd turtle's head flowers of pure pale pink standing out clearly against a background of grey rock were all shown.

A really wonderful collection of vegetables, which was awarded a gold medal, was staged by the Hon. Vicary Gibbs. One always expects from Aldenham only the very highest quality, but this time Mr. Edwin Beckett excelled even himself. The vegetables were not only excellently grown and staged, but the large variety shown made the exhibit one of the best of its type ever staged. Messrs. Dobbie had an interesting collection of many kinds of potatoes, including disease-resistant varieties.

Dahlias, carnations and hardy border flowers were also shown, and the following had interesting collections:

Carnations.—Messrs. Allwood Brothers, C. Engelmann and Stuart Low and Co.

Dahlias.—Messrs. J. Cheal and Sons, William Cutbush, James Riding, Charles Turner and J. T. West.

Gladioli.—Messrs. Dobbie and Co. and Mr. Alfred Edwards.

Hardy Flowers.—Messrs. T. Carlile, K. and E. Hopkins, B. Ladhams, H. Marcham, A. Perry, M. Prichard and W. Wells, jun.

Violets.—Misses Allen-Brown, Mr. J. J. Kettle and Mr. Baldwin Pinney.

NEW AND RARE PLANTS.

AWARDS OF MERIT.

LIATRIS SCARIOSA ALBA.—As the name indicates, this is a white-flowered form of this hardy North American perennial. The numerous heads of flowers are carried in a fairly loose spike and differ from the type species in colour and in being slightly larger. It should prove a useful addition to the hardy wild flower border. Shown by Mr. Amos Perry.

CHRYSANTHEMUM ENCHANTRESS.—A good double variety, carrying flowers of medium size. The petals of the blooms are of a clear rose pink colour and have that silken sheen which is so often lacking in many pink sorts. Shown by Mr. Thomas Bones, Cheshunt.

CHRYSANTHEMUM CRANFORD CREAM.—This variety is a fine addition to our early double flowering sorts. The blooms are of medium size and soft cream coloured, merging into a light cream-yellow centre. Shown by Mr. W. Roots.

NÆGELIA WALMSGATE BEAUTY.—An exceedingly graceful representative of the Gesnerad family, with all its attendant characteristics. The soft velvety leaves are more or less cordate in shape. The flowers are borne in a loose terminal cluster and are whitish pink in colour suffused with yellow in the throat, which is spotted. These dangle gracefully on long petioles from the upright stem. This variety makes a fine ornamental pot plant for a warm house. Shown by the Director of the Royal Botanic Gardens, Kew.

ORCHIDS.

LÆLIO-CATTLEYA QUEEN MARY VAR FULGENS.—One of the finest forms of this hybrid between L.-C. Lustre and C. Peetersii. The spike bore three very large flowers, having the sepals and the broadly developed petals of a uniform rosy mauve colour. The expansive labellum ruby crimson, except for a small yellowish area on the inner side of each lateral lobe. This hybrid was originally named in honour of Queen Mary's visit to Westonbirt. First-class certificate. Shown by Lieutenant-Colonel Sir George Holford, K.C.V.O., Westonbirt, Tetbury, Glos. (gardener, Mr. H. G. Alexander).

LÆLIO-CATTLEYA PANDORA (C. Fabia × L.-C. Marmion).—A beautiful hybrid with a single large flower of bright flesh colour in the sepals and petals, the labellum ruby-coloured, the lateral lobes having a golden area in the centre, while the extreme margin is rose-tinted. A distinct break away from the usual colouring. Award of merit. Shown by Messrs. Cowan and Co., Southgate, N.

CATTLEYA BELLONA VAR. ST. ALBANS (C. Dowiana × C. Maggie Raphael).—An elegant result in which the spike carried four flowers having greenish yellow sepals, cream-coloured petals and the labellum ruby-crimson over its entire area, with some gold veining. The column is cream-coloured. Award of merit. Shown by Messrs. Sanders, St. Albans.

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CORRESPONDENCE

CYTISUS SCOPARIUS ANDREANUS.

SIR,—I have here an old shrub of Cytisus scoparius Andreanus of considerable size, and I should be glad to hear if any of your readers know of a larger. The circumference of its trunk a few inches from the ground at the smallest part before it begins to branch is 27ins. It covers an area with a circumference of about 50ft., the whole plant being perfectly healthy and covered with blossom every year.—LADY GEORGE CAMPBELL, *Argyll.*

ROSES ON THEIR OWN ROOTS.

SIR,—Having been very successful in striking roses on their own roots, I beg to corroborate the practical hints given concerning this subject by Mr. T. W. Briscoe in your issue of September 26th. The only point of difference in treatment between myself and Mr. Briscoe is his choice of a partially shaded position, whereas I have always put rose cuttings in an open unshaded place. Evidently this is an item of practice that need not be unduly emphasised one way or the other.

My experience leads me to add that acknowledged weakly growing varieties are not worth troubling with unless the soil is light and the position warm where the plants would afterwards have to grow. Hybrid perpetuals, hybrid teas and teas I have found to root quite well in the open ground—though I admit the growth of pure tea varieties is freer and stronger in a frame than when managed entirely out of doors. As adding interest to this subject the accompanying illustration will not be out of place as it shows a bed of Caroline Testout well established on its own roots.—C. T., *Ampthill Park.*

ROSE CAROLINE TESTOUT ON ITS OWN ROOTS.

THALICTRUM DIPTEROCARPUM.

SIR,—Do you know what you have done? You have made me get out of bed at three in the morning to fetch my writing pad, in order to write a short note about the delicate charm of Thalictrum dipterocarpum when grown in 5in. or 6in. pots in a cold house. It was in war-time. I had raised about a dozen and a half plants from seed, and, reading about their doubtful hardiness, I put them in pots. As everyone knows, heat had to be severely economised then. They got frozen solid, and I thought it would be all over with them. But no. The pots thawed in due course, and then the dipterocarpums went ahead as if nothing untoward had happened, and in due time produced a crop of the most lovely pale mauve fairy parachutes that to me, at any rate, were far more fascinating than the rosy lilac ones which "R. H." (pages 540–541) and others see out of doors in borders and in wild gardens. This is the peg: I want to hang something on it. I do appreciate the more human touch in THE GARDEN, and I feel there will be many another who will do so too. Often have the garden giants of olden days expressed to me their regrets at the comparative absence of the personal "pars" which were such a feature of the paper in the far-off days when Robinson edited and Moon drew those fine coloured plates. Mr. Editor, go on as you have begun, and you will get lots of people out of bed to jot down something that suddenly occurs to them and which they think will be of interest to their fellows, if they feel it has a chance of seeing daylight in your pages. A cat may look at a king. Doubtless some of these contributions will bear something of a resemblance to the cat. But have you ever heard that either king or cat were any the worse for the proceeding? I must produce my Van Oosten chestnut. (Kind readers, forgive me doing so, but it just hits off my feelings about having these notes and "pars" in our paper. Some day we may be able to stand in our gardens and broadcast our ideas and thoughts to all and sundry; but until then let us be thankful that we have a paper and an Editor who—for the time being, at any rate—are our *Deus ex machina.*)

"If the Tulips should be made common the civilest Dealing that is in the World would thereby be taken away from Men, and they would be deprived of the sweetest Communication that is among honest Men. How many pleasant Visits? How many friendly Conversations? And how many solid Discourings? It is a very pleasant Entertainment of our thoughts to be thus busie with the Contemplation of Flowers." (*The Dutch Gardener.*)—JOSEPH JACOB.

GARDENING IN EAST ANGLIA.

SIR,—Having read with much interest Sir Herbert Maxwell's note on "Gardening in the West of Scotland" in THE GARDEN of September 5th, I want to put in, once again, a plea for East Anglia, though feeling that so humble an amateur as I should hardly throw down even the most Liliputian of gauntlets to such an authority as Sir Herbert. But, being a dweller, and gardener in East Anglia—and in that Cinderella of counties, Essex—I want to query the statement that the "British climate varies far more according to longitude than latitude." In many cases this may be so, but I have found that at my own home, Thorpe-le-Soken, we have been able to grow a large number of the tender shrubs and plants that are supposed to be limited to Cornish gardens. For instance, we have two Eucalyptus Globulus trees beside a pond, that are "forest trees," and which in 1914 bloomed and seeded themselves in half a dozen places. Near Brightlingsea, high up, and exposed to every gale from the North Sea, there are a large number of eucalyptus—Gunnii, I think, so far as I remember at the moment—thriving in the hedgerows and of considerable age, having been planted there as seedlings by an inhabitant who loved their evergreen beauty.

Besides E. Globulus in my own garden, we have been most successful with the more tender olearias and veronicas, procured originally from the Cornish garden of my brother-in-law, the late John Boscawen.

Clianthus puniceus thrives with us against a sheltered wall, and Abutilon vitifolium has made two fine bushes at the back of a border in quite an exposed situation. In addition to these specimens, my gardener has, during my absence in Canada, succeeded admirably with various Australian shrubs that, so far, I have not seen, and this has encouraged me to resolve that when I return home next year I shall make many more experiments with those tender plants which are supposed to grow nowhere except in Cornwall.

I rather fancy that the explanation of this ability to "do" the tender plants in our part of Essex is due to the fact that, being near the sea, though some two miles inland, we get the humidity of the salt air that softens down the rigours of frosts (of which we really have very few), and also that our summers have many very fiercely hot days of prolonged sun that ripen the wood swiftly and thoroughly. I should be much interested to hear if others among your readers who garden in East Anglia have had the same experience with regard to tender plants.—EVELYN BYNG OF VIMY, *Government House, Ottawa.*

POTENTILLA FRUTICOSA.

SIR,—Your correspondent "H. A. G." describes a number of shrubby potentillas, some of which he thinks must be wrongly named.

P. Veitchii he speaks of as sulphur. I had this from Veitch when it was first introduced: the true Veitchii is a dwarf grower with pure white flowers. P. Vilmoriniana sounds true to name: the leaves are of a beautiful silvery colour. P. Friedrichseni is a garden hybrid, raised by Späth of Berlin, the parents being P. fruticosa and P. davurica. This is a good deal deeper in colour than P. Vilmoriniana; but there is a pale form of it, P. Friedrichseni ochroleuca, which I have had from Messrs. Smith of Newry. The leaves of Friedrichseni are bright green. I know few shrubs more valuable than this for continuous flowering: and pale yellow is a colour of which we have too little.

As for Farrer's potentillas, I imagine that it will be difficult to sort these out as named species. Farrer found them, did he not, growing all mixed up as scrub on the hillside? If I remember rightly, he speaks of them in "On the Eaves of the World" as being probably natural hybrids between fruticosa and davurica. In his own collection of them every shade from the deep yellow of fruticosa to the white of davurica was represented; but I think none had a leaf as large as that of Friedrichseni. Nearly all these forms of Farrer's importation are delightful garden plants.—W. ARNOLD-FORSTER.

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GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants

LILIUM LONGIFLORUM GIGANTEUM.

AT present in the garden this species is providing a gorgeous display and a striking contrast. Situated, as it is, at the back of the glowing flowers of Coltness Gem dahlias. The display of this novel combination of lilies and dahlias has lasted throughout September and will continue in October if severe frosts are absent.

The cultural details in connection with this most beautiful autumn-flowering lily are such that anyone can follow with every hope of success. Good bulbs were procured by us in the spring and set out early in April, 3ins. to 4ins. deep (measurement take from tip of bulb to surface of soil), in the corner beds of our flower garden. The soil was in fine condition for planting at that time and had been manured and dug exactly one month previous to the date of planting. The stems of this beautiful lily attain a little over 2ft. in height and from two to four flowers are borne by each stem. R. Wallace says of this lily, "a grand plant of very free growth; the flowers are large and well formed, of great substance and purity, lasting a very long time when cut."

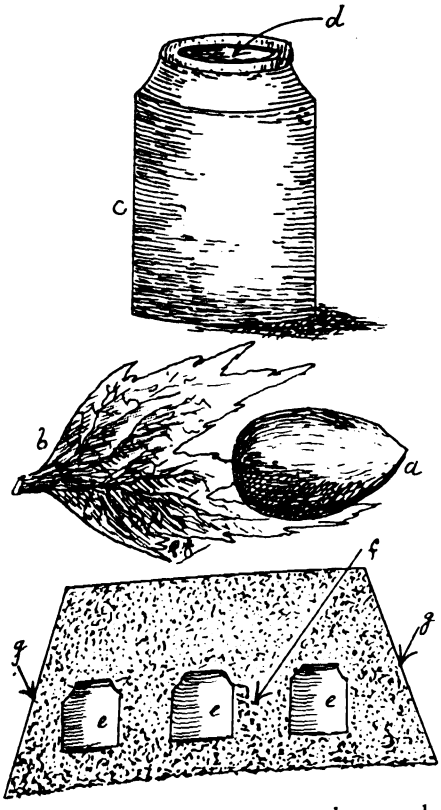
On the same day bulbs of Lilium auratum platyphyllum were set out in the beds, but farther back. This is a much taller-growing lily and later in flowering; it has also grown well and is now, October 1st, furnished with flowers, which, however, are not quite opened, but should provide a lily display throughout the present month.—D. ARMSTRONG.

THE TREATMENT OF BOUGAINVILLEA, PLUMBAGO AND SIMILAR GREENHOUSE ROOF PLANTS

THESE hard-wooded plants, jasminum and heliotrope, well treated in regard to soil, training and pruning, create in lofty structures quite a sub-tropical appearance. They may be grown in small houses with good effect, too. One frequently sees odd plants of some of them blocking up a corner or a roof of a greenhouse; these specimens form a mass of shoots, some of the latter bearing a few puny flowers. This is not the right way to grow the plants. Whether trained to supporting pillars or under the roof glass they should be treated—unless in exceptional circumstances — as cordons similar to grape vine rods. Neglected plants may, during this autumn, be pruned severely and brought into good shape. Young ones, to be planted now, should possess a single long rod or stem, not one that branches much. In every case they should not be nearer to the roof glass than 18ins., 2ft. being better if there is sufficient space. When the flowers have faded, or most of them, cut back all side shoots to within 4ins. of their base. Having removed so much top growth, less water will be needed at the roots. Indeed, till early next February the soil should be kept on the dry side. About the middle of January again prune back the spurs to within 2ins. of their base. Soon after doing this thoroughly soak the border with clear water. Thin out the resultant new shoots and allow some of those retained to hang gracefully from the roof. When in flower they will look charming.

NUTS AND FRUIT

NATURALLY. nuts, when stored, form and not like all other stored. a bush in the hedge, generally keep well. We may find them in the grass or under the leaves on the hedge bank in the depth of winter, but the kernels are plump and sound, crisp and sweet to eat. Those badly stored artificially are often found to be shrivelled and of a musty flavour. So, to be able to store our harvest of nuts successfully we must imitate nature. In the accompanying sketch we see at *a*, a filbert freely parted from the "husk," *b*. All nuts, including walnuts, should be free of the outer "husk" spread out in a cool draughty place, not exposed to the sun and rain, for a few hours to dry. One turning will be sufficient; then pack them firmly in jars, *c*, and use a good cork, *d*. Store the filled jars, *e*, in dry sand, *f*, in a cellar for choice. The sides of the heap, *g*, *g*, should be free from outside walls. In this position the nuts will remain sound for a long time. Store in a body of sand, not on the floor itself, and then cover with sand.



Medlars should be stored eye downwards, on a thin layer of sand on a shelf in the fruit room or in a dry cellar. Quinces store as pears in the driest part of the store, and apples in the coolest.

BULBS IN POTS AND BOXES.

THE management of bulbs in pots and boxes just when they begin to grow is a very important point in their general treatment. Some cultivators place empty inverted flower-pots on the pots containing the bulbs and then cover all with ashes or sand. The empty pots prevent the covering ashes from pressing unduly on the new growths and, perhaps, causing loss of flower spike or malformation. Where only a few bulbs are grown this plan of covering does not entail much labour, and, furthermore, it is necessary, from time to time, to examine the progress of the new shoots to enable the cultivator to regulate the growths by leaving the bulbs longer under the covering material or removing them to a cold frame. When the bulbs are covered with sand or ashes these must be very carefully moved to one side when the bulbs are being examined from time to time, or the tender embryo flower stem may be broken. In the case of tulips and narcissus the new shoots should have grown about 3ins. in length when the pots are removed from the covering material; the embryo flower stems will not be visible. In the case of hyacinths, the embryo flower stem will be visible at the stage when the new growth is 3ins. long. Remove the pots to a bed of ashes in a cold frame, and immediately darken the frame by placing mats or sacks or litter on the glass and keep the frame closed. The after-treatment consists of the gradual exposure to light and air and careful watering and feeding.

THE LILY OF THE VALLEY.

I DO not know anyone who dislikes the lily of the valley, although a few persons in every county may do so. Now, simple as this flower appears to be, the plant is most difficult to grow in many gardens, whereas in others it grows like a weed. For very many years I grew a quarter of an acre of the lily of the valley, not in one place but in several positions in the garden; these faced east, south and west respectively. Not any faced due north. In one garden the plants would not thrive at all, so a bed was prepared on the north side of a wall, and here the plants succeeded well. This was in a Lancashire garden; the large area was in a Hampshire garden, and yet in another Hampshire garden the lily could not be successfully grown except in a border facing north-east. I experimented with various top-dressing materials in the case of the larger area, where the roots permeated the soil under the pathways and grew there luxuriantly. In the woods where this lily grows naturally—to my knowledge in the Eastern Counties, in Cumberland and in Hampshire—natural top-dressing materials are available from the trees; in Hampshire may be seen beds covered with pine needles. The lilies were the finest I have seen and grown in peat and sand. Pure loam I found to be the worst, and leaf-soil and sandy loam the best, top-dressing material. Rotted manure was bad except when applied in small quantities. When planting new beds or renovating old ones the crowns should be graded and not planted nearer together than 9ins., to allow for increase; overcrowding is wrong.—G. GARNER.

HEAVY TOMATO CROPS.

IN this country tomatoes must be beautifully round, fine in texture and not too large, otherwise they are quickly discarded and pass out of favour. Abroad, however, and particularly in those parts of the world where the tomato is a field crop, this is not the case, and often one finds the favourite to be a variety which bears very heavy crops of huge, coarse (in our opinion), and badly-shaped fruits. For two years I have grown one of these kinds, ponderosa, a variety which is fairly common in America, Italy and Japan. Well grown plants bear much heavier crops than the favourites of our gardens and the fruits are so large that one to the pound is comparatively common. The fruits are almost invariably badly shaped, something like the original varieties of "Love-apple" grown here; the flavour is not at all bad and in the cooked condition it is quite impossible to discriminate between the home and the ponderosa. I can only add in conclusion that I intend growing a few plants every year—so that my final opinion is not entirely against it.—CLYDESDALE.

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BOOK REVIEW.

WITHIN recent years the nomenclature of probably the greatest economic group of insects has undergone almost revolutionary changes, and horticulturists and agriculturists alike will welcome the volume, "A List of British Aphides," by J. Davidson, B.Sc., F.L.S. (Longman's, Green and Co., Paternoster Row, E.C.4, price 12s. 6d.), which has been recently published.

The book, as the author states, is intended only as a reference book and as an aid to collectors in the field in the identification of species. From that viewpoint it serves an exceedingly useful purpose and will be found to be a valuable guide.

Of the four sections into which the book is divided, the first deals with species found and recorded in Great Britain, together with a list of their host plants and their distribution in area. In Section II is an alphabetical list of genera found in this country with their synonyms, and critical notes: while Section III contains a list of food plants on which aphides have been found. An exceedingly useful, although incomplete, bibliography ends the monograph, which, from the scientific standpoint, is an important contribution to entomological literature. It is, however, beyond the scope of the practical gardener, unless he be a keen entomologist.

The general arrangement is good and the text is most clearly printed. Save for a few errors in plant names, which are rather glaring, the volume is remarkably free from those blemishes which result from careless proof reading. G. C. T.

A Rose Competition in Scotland.—It may be recalled that last year THE GARDEN held a competition to decide by the popular vote of its readers, what, in their opinion, were the best six hybrid tea roses in cultivation. The competition created widespread interest at the time, and it is gratifying to see the success that has attended a competition on similar lines run by the *Daily Record and Mail* of Glasgow. In this case the question set to the competitors was the choice of twelve representative varieties which they considered best for garden decoration. Four hundred and three lists were received from all parts of Scotland, indicating the enthusiasm of amateurs in rose cultivation. The best twelve roses resulting from the plebiscite vote were as follows: Frau Karl Druschki, Caroline Testout, Mme. Edouard Herriot, General McArthur, Ophelia, Golden Emblem, Hugh Dickson, Lady Pirrie, Mme. Abel Chatenay, Mrs. Henry Morse, Los Angeles, Betty Uprichard. It will be seen that this list includes the six varieties which readers of THE GARDEN considered as the elect. This serves to show that the popularity of such sorts as General McArthur and Ophelia is as widespread in Scotland as elsewhere. We extend our congratulations to the *Daily Record and Mail* on the success of its effort, which will give a stimulus to rose cultivation throughout Scotland.

NEW CHRYSANTHEMUMS.

THE Floral Committee of the National Chrysanthemum Society met at the Royal Horticultural Hall, Westminster, on October 4th last, and made the following awards to novelties:

BRIGHTNESS.—A beautiful Japanese variety with flowers rather larger than is usual with the early-flowering varieties. The flowers are a bright crimson colour lightly touched with maroon. First-class certificate. Shown by Mr. H. Woolman.

CRANFORD CREAM.—This seems to be one of the most valuable early-flowering new chrysanthemums of the season. It is a very free-flowering variety, producing plenty of sprays of substantial flowers of medium size and pale creamy primrose colour deepening in the centre. First-class certificate. Shown by Mr. W. Roots.

CRANFORD RED.—A showy variety of reddish chestnut colouring, passing to reddish orange at maturity. It makes plenty of sprays of narrow petalled flowers. Commended. Shown by Mr. W. Roots.

NANCY THOMAS.—A pretty free-flowering variety for the border. The flowers are of a reddish terra-cotta shade and are freely produced. The plants are of very dwarf and compact habit. Commended. Shown by Mr. H. Woolman.

TRADE NOTES

"Windolite," the Unbreakable Substitute for Glass.—In recent months, much prominence has been given to a composition known as "Windolite," an excellent substitute for glass, and concerning which we have recently received some interesting information regarding the various uses to which it can be put. It consists of a transparent composition reinforced with fine wire netting, and is flexible and unbreakable. It can be employed in the construction of garden frames, hand lights, farm buildings, factories, etc., and the importance of the material lies in the fact that it admits ultra-violet rays which are excluded by glass. Experiments with "Windolite" are being carried out by several well known people in both the medical and horticultural worlds, and it has been found that the plant, like the animal, is greatly benefited by ultra-violet rays. "Windolite" is a washable material which admits all light and excludes wet and cold. It is light, can easily be cut and fixed, and from it cloches, hand lights and shelters made for many types of plants. "Windolite is said to prevent plants from being "drawn" or scorched, as they are liable to be under glass. Instructions for making simple plant protectors and cloches are given in the pamphlets supplied by the firm of manufacturers.

The Briton Chemical Products.—Of the several Briton Chemical Products I have, during the past few months, had experience of the following:

THE "FERRY" INSECTICIDE.—This has proved to be a splendid plant wash—easy to apply, not unpleasant to use and very effective against rust, the milder mildew form of it, and other fungoids. It is also efficacious against thrips, aphides and red spider, which are so troublesome on plants during sudden changes from hot to cold temperatures and *vice versa*.

THE "FERRY" GARDEN MANURE.—This is claimed to be a most useful manure for general purposes. I applied some to growing crops of vegetables and also to pot plants, chiefly chrysanthemums, and found that the pot plants benefited quickly, as their roots were confined to a small space. In the open border stronger doses can be applied, and though not quite as rapid in action as in the case of the pot plants, the resultant benefit was lasting.

THE "FERRY" ANTISEPTIC.—This, also, was well tested and proved very safe and cleansing in all places where it is necessary to use regularly a reliable disinfectant. As an antiseptic it was used on the arm of a lady who was stung by an insect. A swelling and running eczema developed and, after various remedies had been tried without avail, the "Ferry" Antiseptic was applied at full strength, bathing the part and tying on a swab soaked in the solution. In three days the running sore had stopped and clean skin formed; in a short time no trace of the trouble was to be seen. A very important point in using these products, I find, is the careful application according to the instructions. G. G.

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FARRER'S WORD PAINTING

FIVE years ago, on October 17th, 1920, Reginald Farrer died at Nyitadi on the Burmese-Chinese frontier. There is no need to remind gardeners of the debt they owe him, for his personality lives in his writings, so vividly that no one who has ever caught the Farrer tang can refrain from reading and re-reading his books. It is true that many of them cannot be read through from the first to the last page over and over again—"The Rainbow Bridge" and "On the Eaves of the World" are exceptions, for they are great travel books as well as works on the flora of an out of the way corner of the world—but one can spend endless half-hours of enjoyment in dipping into others here and there.

Like in most interesting authors, his style was argumentative. He loved prodding people by means of his own vivid perception and vision, and he always wrote with an assurance that at times must gall some of his readers. This has given rise to the accusation one sometimes hears, that he weaved a spell over some plants that were unworthy of his pæans of praise.

It has also been suggested that he allowed his pen to run away with him and over-coloured some of his descriptions in order to force into prominence plants which he knew in his own perception were not so marvellous as he made them out to be. That is not true. He was always sincere. He had violent likes and dislikes, and some of his tastes in plants were unusual. What he did was to realise the power of his own pen and so bring into the limelight plants which he thought were neglected. One had to know him well before one realised the fire of his enthusiasm, which came more to the surface when he was writing than when he was talking. Sometimes the exuberance of expression that bursts forth in his books is almost embarrassing.

Here are two examples of his descriptions: one plant I have not seen; the other I know well and was present at its discovery. I re-read the other day in "My Rock Garden" his description of his long hunt for Eritrichium nanum above Zermatt. Has ever a plant had such a wealth of rhetoric poured upon it? One follows him up the gullies breathlessly, shares all his doubts as to its existence. "Already I am ing to feel rather tremulous. For we are very high up he crown of the pass is straight above our heads, dred feet. Somewhere in that four or five diant triumph or blank disappointment." entence until one is terrified of an his skill carries him past the make sure of the bliss no delusion, no silly Myosotis—it is Eritrichium itself. A calm glory of destiny fulfilled descends upon me." He then goes on to describe the plant and the description includes a masterpiece of word painting of colour: "I find that in Eritrichium a dash of Chinese white is mixed with the azure, and thus the softer tone is produced; there is also—and now I must be read with caution—the minutest, minutest touch of crimson,—oh, so little that the very suggestion seems ridiculous, and yet the cobalt-laden brush, after a lick of white, must make the merest feinting flirt across the cake of crimson, if the rich, clear, gentle, perfect blue of the flower is to be finally divorced from any suspicion of yellow. For, into nearly all the azure flowers we know, a suspicion of yellow enters, and leaves a tang of green; only Eritrichium is perfect and undefiled in its tone." And so on. I have never been fortunate enough to see this plant in its full glory, but I am so certain of Farrer's sincerity that I am not at all sure that I do not prefer to look at it through Farrer's eyes than through my own. I probably get more enjoyment from reading, at my own fireside, this chapter, which was written months after the event, than if I toiled up those hot gullies to see it for myself. It may be partly laziness, but I have a vast admiration for the way in which he piles Pelion on Ossa for the sake of a carpet plant, and leaves me satisfied at the end.

Another picture: our first view of Nomocharis pardanthina on Hpimaw Hill. We rounded a corner which we had seen many times before but had not visited for a month, and came unexpectedly on what he called "sweeps of ten thousing times ten thousing all over the alpine meadows wherever there are any!" My own feelings do not matter, for I am writing about Farrer; but I distinctly remember that we kept deathly silent for probably five minutes. This may partly have been because it was so unexpected, but he said very little for the rest of the day. His feelings were slowly incubating, and only on the next day did he start to burst into song. It was one of the few individual flowers that he mentioned in his letters home. Thus, in one of his articles in the *Gardeners' Chronicle* his feelings began to take shape, and he wrote: "How shall I describe it, for the benefit of those who have only seen its lovely flowers drooping lonely in a pot at a show? It is most like some hybrid of a minor lily with Odontoglossum Rossii, combining the perverse and sinister spottings of the one with the frank and graceful loveliness of the other, alike in proud, meek port and delicacy of shell-pink colouring. And when you see it on the open high alpine grass-slopes of Hpimaw pass nodding down at you with myriads of wide-open, dark-eyed faces, in every shade of

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pale rose and every degree of freckling, there is nothing very much left for you to look at on Hpimaw pass." What would he have said in a book? And yet he could not have said too much, for I was there and saw the sight for myself.

In his account of eritrichium he said that he found it when climbing with a party of friends, probably either Mr. Bowles or Mr. Clarence Elliott was with him. It would be interesting to know if the same process took place on that occasion.

Beauty is not the same to all eyes, but I do not think that even this criticism of over-description can be laid at Farrer's door. He was sincere in describing a plant as he saw it.

E. H. M. C.

SOME GARDEN DESIGNS—I

A RECTANGULAR LAY-OUT SUITABLE FOR COUNTRY OR SUBURBAN NEIGHBOURHOODS.

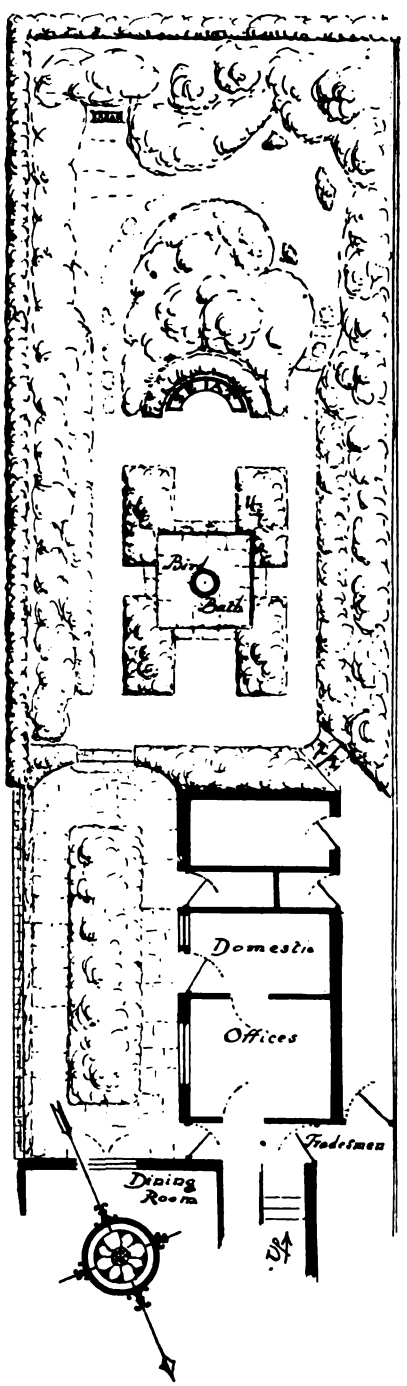
ON the artistic principle that one should work always from the simple to the complex, the lay-out of a small rectangular garden-plot, such as one finds in the suburbs of many of our great towns, would appear to be unworthy of the attention of anyone who had really mastered the principles of garden design. Any garden owner should, apparently, be able to lay-out effectively so confined an area. Practical experience, however, tends to show that the larger the garden, the easier the lay-out. And, conversely, the smaller the area to treat the more difficult it is to obtain even a tolerable result.

I cannot, of course, give a design or designs applicable to every garden—and, in the interests of diversity, I would refrain, even if it were possible. It is rather *ideas* than *designs* which should prove helpful, but these can only be worked out successfully in practice if a few of the principles of garden making which apply to quite small gardens are mastered.

If an architect (house architect, I mean), really knows his business, in designing and arranging the exact site for a house standing in its own grounds. he will allow ample opportunities for the landscape gardener to arrange a pleasant outlook and, very probably, pleasing vistas from each of the principal rooms, as well as from a possible loggia or verandah and from the house terrace, if there be one. And this arrangement of gardens around the house is the very first thing the practised garden architect looks for. Now, with the small type of suburban garden we are at present considering, there is, almost certainly, only one outlook on to the garden, and that a lop-sided one, and often flanked by unbeautiful domestic and out-offices. It is none the less necessary to make the best of it.

For the purpose of the present article we will consider the lay-out of a rather typical garden strip, with an aspect not exactly calculated to make easy a wealth of colour near the dining-room window. A long bed, centred on this window, might, however, have a few bushes of mahonia, Berberis Aquifolium, to provide furniture at all seasons and, for the rest, might contain ferns, shade-loving bulbs and tubers — Scilla nutans and S. campanulata, erythroniums, trilliums, Anemone nemorosa and varieties of hardy cyclamens and perhaps muscaris—while certain herbaceous plants, such as many spiræas, the galegas, dodecatheons, primroses, polyanthus and other primulas, Campanula alliariæfolia, and even a good strain of our common foxglove will help to bring colour in their season. Among bedding-out plants the most satisfactory for such a position is, perhaps, the most effective of all—the tuberous begonia.

Fig. 1 should serve to show even the least experienced in garden-plan reading, how a satisfactory vista right



through to the bottom of the garden may be obtained without sacrificing the proportions of the component parts. The rose lover will certainly fill the four beds round the little sunken paved square with his beloved hybrid teas and pernetianas, while groups of roses will probably constitute part of the planting in the flanking borders. For those with different tastes plants with fragrant flowers and foliage would be suitable for these dwarf beds, and the greyness of foliage which suits so well with stone garden walls and paving happily often accompanies the fragrance. Thus we have the pink and carnation, hoary of foliage and fragrant of blossom, lavender and rosemary fragrant at all points, and many species of artemisia, delightful shrublets with silver or grey-green foliage laden with all the odours of pot-pourri. Several species and varieties of thyme and the wild marjoram of our chalky uplands may be added to a by no means exhaustive list.

The usual treatment in a suburban garden for the outside borders is a purely herbaceous planting, but such gives a very uninteresting effect in winter, and there is a multitude of small growing shrubs and such-like which are ideal for the small garden. Not that it would be well altogether to exclude herbaceous kinds from the small garden, or from such borders as these—let me not be misunderstood — but that in the really small garden, as in the very large one, herbaceous plants are better in combination with suitable shrubs than alone. With the aid of berried shrubs and coloured foliage, the laurustinus, winter-flowering heaths, Christmas roses, early-flowering bulbs and a solid background of flowering evergreens—we want no conifers here—such borders may be made quite cheerful in wintertime. (In the Midlands and North, where snow falls and hoar frosts are common, it is worth while to consider the decorative possibilities of trees and plants under wintry conditions.) And with bulbs, flowering shrubs, herbaceous perennials and numerous other subjects, the provision of flowers at other seasons is of the easiest.

The planting of the eastern and western borders need not be the same, but they must "balance" one another and there should be a general similarity about the planting which will unify the whole scheme. A hedge-backed seat ends the little formal garden in the design shown, and behind this a planting of shrubs or even small trees helps to form a setting for the turfed rock or wild garden, which may well be furnished

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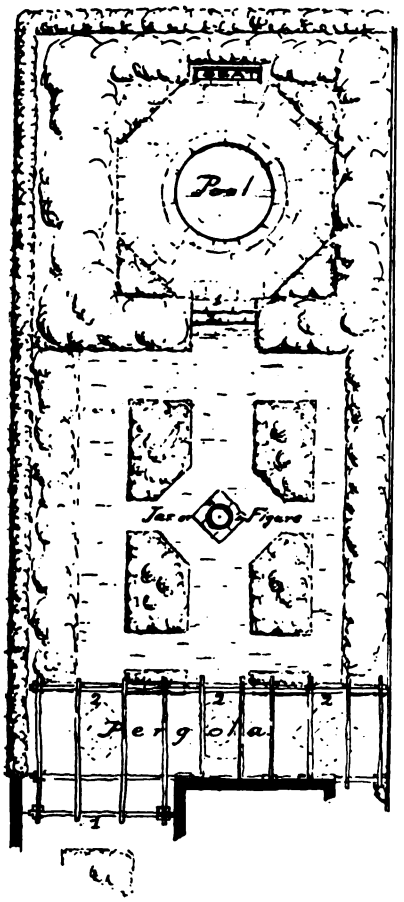


with stepping stones, for we should not neglect means of dry access when the raindrops still linger like jewels on many a lowly mountaineer transplanted to our rectangular suburban garden. The turfy ways—one cannot call them paths—are intended to be hollowed out into little vales so that the planting rears itself up on either hand, but the turfing should nowhere take on the character of real banking, while in places it may well be all but flat in cross-section. Diversity is the very soul of a small garden, but it will not, of itself, suffice. The curves and contours of the ground, those of the planting on either hand and of the few boulders employed, if resort is made to stone (and it can be used with admirable effect), should all combine together to produce a harmonious whole. Experiment will help the novice with his shaping and his building, but a real love for and knowledge of plants is necessary to foresee what modifications each little shrub will make, as it grows, to the sum total of effect. Let us not dwell too long, in this place, on this particular style of gardening. We shall find opportunity to discuss it further in a later article. But before leaving this plan the reader will do well to try to visualise the garden scheme as it is thus feebly shadowed forth and to see the why and the wherefore of each vista, curve and bit of planting.

Fig. 2 shows an alternative arrangement for the plain portion of the same site. Whereas in Fig. 1 we resorted to climbing plants and to a fairly solid border to obscure the blank wall of an unbeautiful outbuilding abutting on the garden proper, we have in this design arranged a pergola to serve the same purpose and to give a certain architectural character to the garden. But our pergola must not head the garden vista from the house, nor must it give a lopsided effect to it.

This plan is much more formal in its treatment than the one first considered and in many ways better, but —and it is a big "but"—ownership or security of tenure is necessary to justify one in building substantial pergolas or laying down pool gardens, for instance.

I hasten to add that the "pool garden" need have no water and need not necessarily be sunken, though such sinking adds much to the interest and effect. An octagonal bed might replace the pool, preferably raised up 9ins. or a foot above floor level and retained by formal or almost formal walling; or a well-head, not necessarily antique; or a figure, or a sundial in a little sunken garden of its own. Note that the heavier, mainly shrubbery planting round this garden is rectangular. The octagonal effect is produced by half squares of low planting in each of the four corners. A low retaining wall running quite round the garden, is, of course, an integral part of the scheme, but, where expense has to be considered very closely, a turf verge tilted rather steeply would not form too bad a substitute. And an Irish yew or a rambler rose on a square pole does not form an altogether unworthy understudy for a bit of statuary or a sundial. In any case, beware of the cheap vase, sundial or bird bath turned out by the thousand and, in all probability, of no particular intrinsic beauty.

Rather get a stonemason to make an unpretentious one for you, or get a bricklayer who loves his craft to scheme one out. The first requisite of a garden is beauty, and beauty comes from unity and repose. But if we must live with a garden we need more than beauty, we must have a measure of originality. The writer cannot understand the mentality of those who slavishly copy work in another garden, whether that garden be situated in England or in Italy. The best of designing one's own garden is that it is one's own. It may have many shortcomings, but at any rate it will to some extent—falteringly at times and blunderingly at others—reflect one's own conceptions and personality. And a garden is more adaptable than a house, so that as time goes on and one's touch becomes surer, one may hope to bring conception and execution more nearly into line. R. V. G. W.

SWEET PEAS FOR AUTUMN SOWING

GOOD AND INEXPENSIVE VARIETIES.

(*Continued from page* 582.)

THERE are now so many excellent varieties in almost every colour class that it is largely a matter of personal taste which one chooses. Good varieties cost no more to grow and little, if any, more to purchase than inferior ones, and it is certainly folly to waste time and money on the latter, when the very best are, comparatively speaking, so inexpensive. I do not claim that the following kinds are the very newest in their respective colour sections, but all are well tried and excellent for home or garden decoration. The great majority are also first-class exhibition peas as well. I give them in alphabetical order and have made no attempt to indicate which is the best in each colour section, for this, too, in most instances, is a matter of personal taste, requirement, and one's district.

WHITE.—Constance Hinton, Edna May Improved, Florence Wright Spencer Improved.

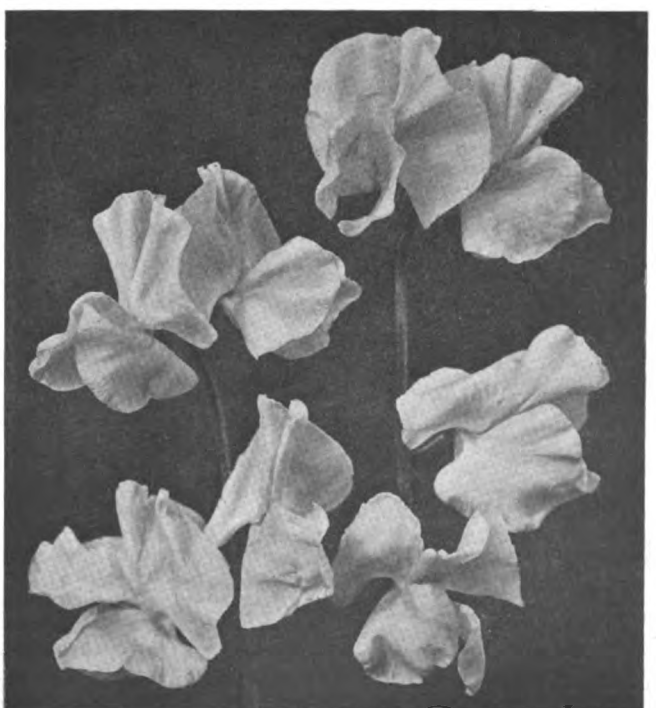
CREAM.—Daffodil, Majestic Cream, Matchless.

CRIMSON.—*Charity, *Crimson King, *Unwin's Crimson.

CERISE.—Charming, Coralline, Doris.

CREAM PINK.—Cecily (light), Fair Lady (light), Mrs. Arnold Hitchcock (light), Picture (deep).

SALMON CREAM-PINK.—Miss California, W. J. Unwin.



THE SALMON-PINK BLOOMS OF W. J. UNWIN.

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PICOTEE.—*Annie Ireland (white ground), *Improved Jean Ireland (cream ground) *Youth (white ground).
PURPLE.—Royal Purple, Purple Perfection.
MAROON.—Splendour (chocolate), *The Sultan (black), *Warrior,
MAUVE.—King Mauve, Mauve Beauty.
BLUE.—Blue Butterfly (light), Commander Godsal (deep), Mrs. Tom Jones (medium).
LAVENDER.—Austin Frederick Improved (rosy), Gladys (lilac), Powerscourt (lilac), R. F. Felton (rosy), Wembley (light).
ORANGE-SALMON.—†George Shawyer.
SCARLET-CERISE.—Grenadier, Pimpernel, Royal Scot.
SCARLET.—Camp Fire.
ORANGE.—†Guinea Gold, †Royal Sovereign, †Wizard.
ORANGE-SCARLET.—†Mammoth, †May Cowdy, †May Unwin.
BLUSH.—*Elegance (silvery lilac), Felicity (pink), Valentine (pink).
PINK.—Hawlmark Pink Improved (salmon), *Hebe (rosy), Mrs. Charles W. J. Unwin (salmon), *Supreme (china), Tom Sykes (scarlet-pink).
ROSE.—Rose Maiden, *Sunset, Wild Rose,
CARMINE.—*Mascotts' Ingman, *Renown.
FLUSHED.—Advance (white ground), Comrade (cream ground), Improved Conquest (white ground), Improved Faerie Queen (cream ground), Mrs. H. Richards (white ground).
BICOLOR.—*Bonfire, *Dora, *Mrs. Cuthbertson.
SALMON.—†Barbara, †Melba.
STRIPED.—*Lady Gay.

Of the above, those varieties marked with a dagger (†) need shading in bright sunshine to retain their full colour, and those indicated by an asterisk (*) usually give a more even and quick germination if their seed-coats are slightly "chipped" before sowing. C. H. A. S.

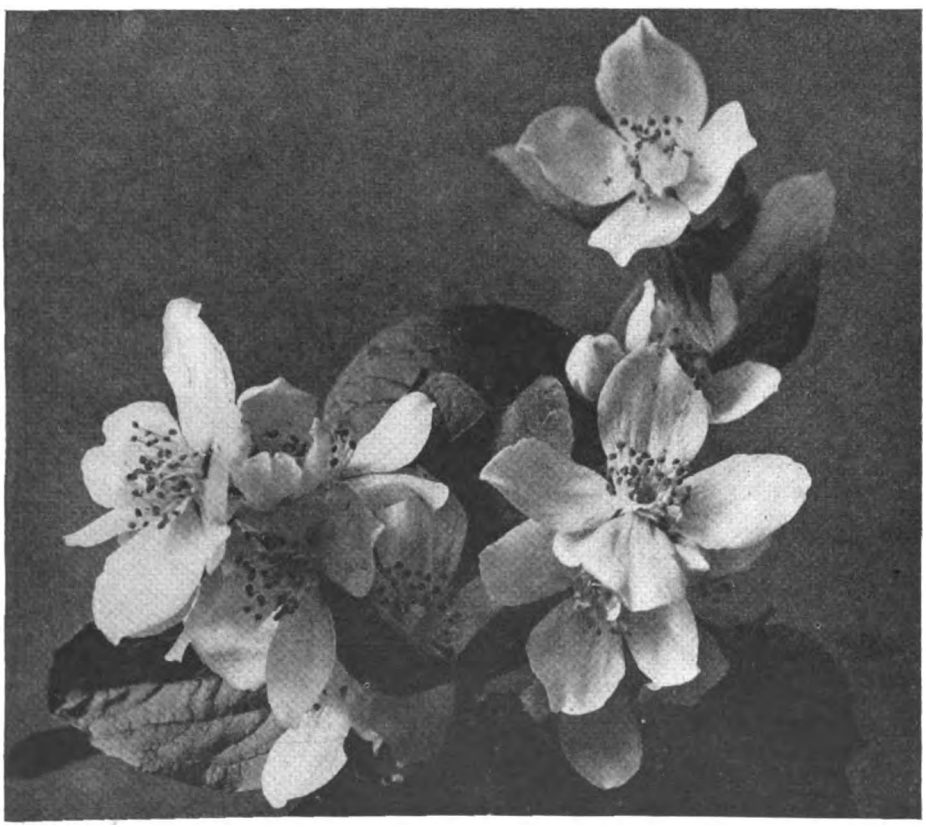
A SELECTION OF FRAGRANT SHRUBS

FRAGRANCE in the shrub world may be met in every direction, and lavish indeed is the range of subjects that await the planter's selection. There is, in fact, practically no limit to this, and whether it is proposed to plant out a large shrubbery, a few specimens in the general garden, clothe some of the larger boulders in the rock garden, screen the house walls or furnish the pergola with blossoms and fragrance, the only difficulty likely to be encountered is that of deciding which to reject. A complete list would fill a volume, but I give below a few important fragrant shrubs.

Absolutely hardy everywhere and a popular favourite with all, the fragrant jasmine may be used for clothing the supports of the verandah, climbing the house walls (with a very little assistance), or forming a bower-like mass upon the supports of the pergola. This is always fragrant, whether one visits it at noonday or midnight and, also, it is ever crowded by hosts of visiting insects that add not a little to its charm.

For fragrant leaves, we must have the sweet bay—Laurus nobilis—that is so decorative when used as a hedge or grown in standard form. Breaking upon us in a blaze of fiery brilliance in late May or early June, the hardy azaleas provide a colour picture to which it is impossible to do justice in mere words, while the sweet fragrance also leaves one equally tongue-tied. These are a striking lesson in the value of massing and we should never, unless absolutely forced by restriction of area, use them as single plants: a remark that applies with equal force to the question of fragrance as well as colour display.

Sarcococca ruscifolia is not a familiar name, but it is a most valuable evergreen shrub, whose special merit is that it will thrive under trees. A small and compact grower, the shining green leaves are ornamental throughout the year, while the small fragrant white flowers add not a little to its attraction. Among the honeysuckles we have a wide choice of delightfully perfumed flowers which may be chosen in order to provide a succession through many months of the year. It may come as a surprise to some to hear of a winter-flowering species of these, but it is by no means a plant to omit from the fragrant garden. Its name is Lonicera fragrantissima and it bears small drooping white bells all through winter and early spring, whenever the weather is sufficiently mild. A good companion to this is L. Standishii, in which again we have creamy white flowers from November to March.



THE HANDSOME BLOOMS OF PHILADELPHUS CORONARIUS.

The syringa or mock orange of the gardener is the philadelphus of the nurseryman and, where a hardy floriferous, vigorous and fragrant plant is desired, it would be difficult indeed to beat the old Philadelphus coronarius. Hybrids and species may produce larger or better blooms, but the old-time forms yield to none in penetrating odour, a fact of which full use should be made in those parts of the garden that are much frequented in early summer. The true syringa is known to gardeners as the lilac, and is such a universal plant that we need say but little about it. Its perfume is beyond praise, but it is a bad flower for standing wet weather and, for this reason, should not be too extensively used in small gardens, especially as the growth is rather rampant, and thus one is left with a large mass of green through the remainder of the season. Another powerfully odorous early summer shrub or small tree is the single May, whose flowering is synonomous with the month after which it is named, and gorgeous broad effects of colour are readily produced with this, where space permits of large subjects being boldly used. Fothergilla alnifolia is a low-growing plant that deserves to be much better known, for it provides us with splendid effects in both spring and autumn. Of low-growing habit, the flowers are borne on naked branches in April and May and one cannot approach it without being aware of its fragrance.

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Following the flowers come the berries and, with the advent of autumn, these give us a magnificent colour picture that is very charming. The common elder is powerfully fragrant where a plant of large size is required, and a bold bush of this always looks handsome both in flower and when covered by the flat heads of purple-black berries.

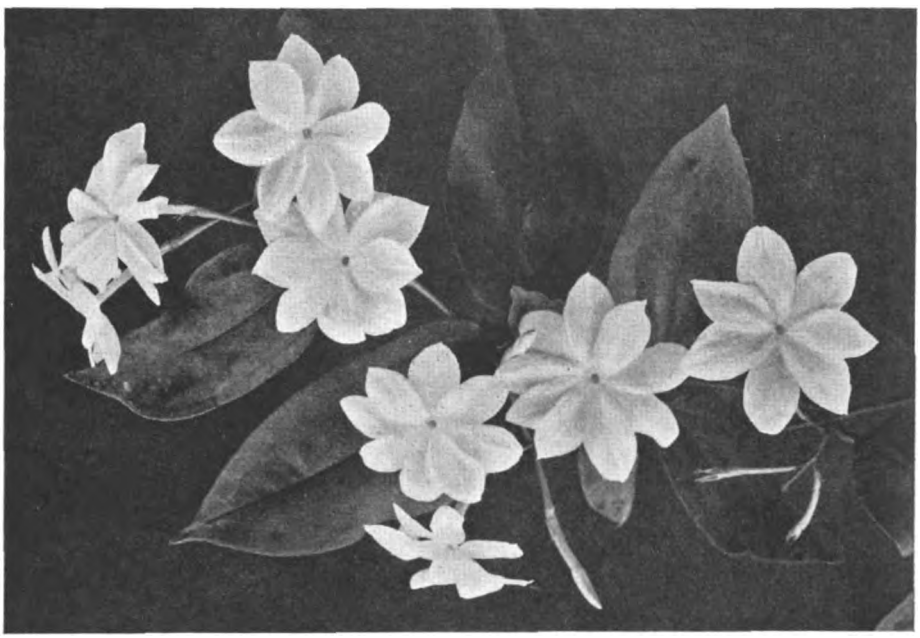
One is so used to the privet as a hedging plant that is kept severely trimmed, that it is very easy to forget that it flowers. But it does, and the white spikes of bloom in July and August have a distinct perfume that is especially in evidence at night. For clothing an ordinary garden wall, Azara microphylla is a very beautiful and perfectly hardy shrub with small, glossy deep green leaves. The flowers are inconspicuous but, from our point of view, extremely valuable, for they smell delightfully with a perfume that strongly resembles vanilla.

Every part, including the root, of the Carolina allspice, Calycanthus floridus, is fragrant and when bruised it gives forth a camphor-like odour that is distinctly refreshing. The flowers, too, are worth notice and are purple with a reddish tinge, produced in early June. A new and somewhat expensive berberis is japonica hyemalis, which flowers from October until early spring. The blooms are borne in racemes that are held almost horizontally and are pale yellow in colour and very sweetly scented. The white Portugal broom should not be overlooked where a free-flowering and striking light-coloured plant is wanted. This is unrivalled for planting in a dry position and one may rely upon a generous supply of flowers being produced annually when once the plants have become well established.

Dwellers in the West of England or other favoured spots may revel in the possession of that beautiful shrub, Drimys Winteri, a gem that is beautiful in either leaf or flower. One can envy, but not hope to emulate the wonderful specimens of this that are to be found in some Cornish gardens. From our present point of view, it is the leaves that contain the fragrance and these are deliciously aromatic when crushed, although we must spare a word of praise also for the delightful ivory white flowers that, when expanded, contribute their share of perfume. The Virginian fringe tree, Chionanthus virginica, is a very handsome May-flowering shrub that is especially happy when planted in a cool, half-shady site. The flowers are in the form of long clusters of white fringe-like petals and smell delightfully.

Though we come to the daphnes at the end of our notes, this does not mean that that is their place as regards value. Far from it, for they provide several indispensable plants for the shrubbery border and the rock garden without which we should be considerably poorer. D. Blagayana does not exceed 6ins. and bears its clusters of creamy-white flowers in early spring. D. Cneorum is slightly taller with round heads of pink flowers, so freely produced as practically to hide the leaves. The Mezereon, D. Mezereum, will flower from January onwards and reaches a height of 3ft. with branches closely packed with purple flowers that are extremely fragrant, especially when brought indoors.

H. W. CANNING-WRIGHT.



THE JASMINE, ONE OF THE MOST FRAGRANT OF GARDEN SHRUBS.

NOTES OF THE WEEK

SPIKENARD.

THE true spikenard, Nardostachys Jatamansi, is a pleasant, neat little plant with umbels of pinkish white flowers like those of the valerians, to which it is closely related; but these modest good qualities are not sufficient to merit a place for it in many gardens, and it is not likely to be grown except by those who are interested in its history or in its peculiar and once famous scent.

It makes pale green tufts of narrow, spear-shaped leaves, slightly serrated at the edges, which are scentless while they are alive but develop as they wither the characteristic mangy-dog smell of the valerians. The virtue of the plant is in the shaggy roots, which, even when fresh, smell strongly of patchouli with a slight added sweetness, perhaps of musk. The scent gains in strength as the root dries, but it tends to take on a faint valerian quality which seems to come from the thicker fibres.

The roots are still collected in Bhutan and Nepal, but they are no longer worth more than their weight in gold, for the introduction of patchouli has ousted them from the Western markets. Although the two plants are so different botanically—for patchouli (Pogostemon Patchouli) is a labiate—their scent is almost identical, and it is curious that a perfume which cannot be described as sweet, but has been compared with cedar-wood, moss, dried bracken, sable fur, old clothes and other things, should make so powerful and widespread an appeal.

Spikenard has lent its name to several other plants. Valeriana celtica, the "speick" of the Austrian Tyrol, was at one time exported in large amounts overland to the East as European spikenard, for although it smells powerfully of valerian, it has some of the patchouli quality as well, and is, perhaps, the least disagreeable of its family. Valeriana Phu, whose odd specific name seems to be just the Greek equivalent of "phew!" is known as Cretan spikenard, though the writer has not been able to find anything more pleasant than a valerian smell in the variety most commonly grown in gardens, the butter-coloured V. Phu aurea. This smell is apparently pleasing to some people, for V. officinalis is said to have been used in the Middle Ages for scenting clothes, and its dialect name "Setwall" is apparently a corruption of the word "zedoary," applied in the general sense of an aromatic root. One of our native composites, Inula Conyza, is sometimes known as ploughman's spikenard, and as spikenard the writer recently received a plant of Mentha Requieni.

Nardostachys Jatamansi comes from high, damp places in the Himalayas and is quite hardy in this country, where it seems to prefer a spongy, peaty soil that is not allowed to get too dry in summer. Here it seems quite happy in the company of some dwarf rhododendrons and Rubus arcticus.—F. A. H., *Chesham Bois.*

WINTER FLOWERS.

APART from Christmas roses and winter jasmine, there are quite a number of plants that flower during the winter months out of doors. Long spells of severe frost are unusual and, generally speaking, the typical English winter is somewhat mild, even if damp and windy. Here are a few plants which, during an ordinary season, will really flower in the open during the dullest months of the year. The handsome Kaffir lily (Schizostylis coccinea) is perfectly hardy and develops its spikes of crimson flowers in November and December. It is best to plant this species by the side of a wall or fence and, if the border has a south aspect, so much the better. The flower spikes being tall should be tied to stakes or they may be broken in rough weather. Even to-day many gardeners do not realise the beauty of the winter-flowering irises. One of the easiest to grow is I. reticulata,

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which develops its violet and gold flowers in January. Other species well worth notice are I. stylosa, I. persica, I. Histrio and the scorpion iris (I. alata). The latter is especially worthy of attention in that it will develop one crop of flowers about October and then, in December, another display of blooms is given, which is generally at its best about Christmas. All the winter-flowering iris should be given a sunny, dry border, where they will be somewhat sheltered from rough winds, which would tend to damage the delicate blossoms. The strong growing saxifrage (S. cordifolia), is generally described as flowering about March. In a sheltered part of the garden the plant produces its rose-coloured blooms quite early in February, and it may therefore be included among the winter-flowering species. The winter heliotrope (Tussilago fragrans), produces its purplish flowers, which are delightfully sweet-scented, in January and February. This plant is just as easy to grow as the common coltsfoot. At least two of the hardy heaths flower in winter. These are Erica carnea and E. lusitanica. One or two of the hardy Zephyr flowers (Zephyranthus) produce their crocus-like blossoms as early as January. Thus Z. gracilifolia makes itself perfectly at home in a warm, sunny border and produces its beautiful rose-coloured flowers in great abundance.—S. LEONARD BASTIN, *Bournemouth.*

MONTBRETIA ROSEA.

MONTBRETIAS are classed under the heading of hardy herbaceous perennials and rightly so, as they rank among the most showy and useful border flowers, blooming profusely for several weeks throughout August and September. The flowers, too, resist wet weather better than those of many other plants, and are also much used as decorative material for dinner tables and room vases.

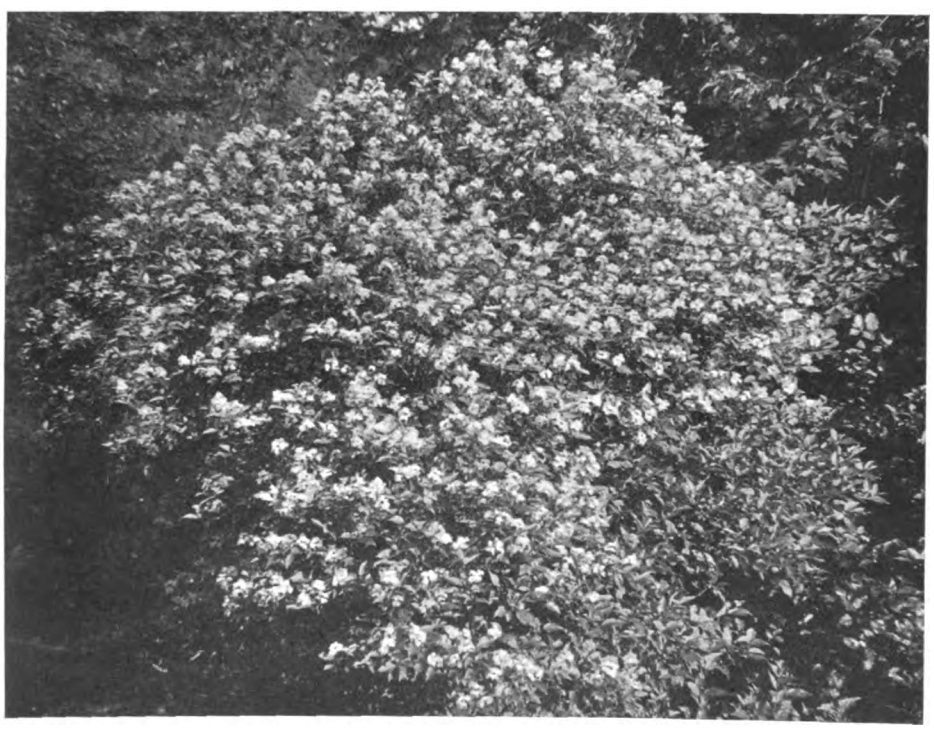
The beautiful pink variety known as M. rosea is rather a choice coloured kind and certainly quite apart from the host of reddish orange and yellow shades which dominate this graceful family. A good open position should be chosen for rosea and if the soil is heavy a sandy compost should be added to each station before planting the corms, as the rose-coloured montbretia is not such a vigorous grower as some of the other kinds, such as the old crocosmæflora or George Davison.—DAVID ARMSTRONG.

CORNUS RACEMOSA, A HANDSOME FREE-FLOWERING SHRUB.

THE cornel shown in the illustration is better known in some gardens as Cornus candidissima or C. paniculata. The oldest name, C. racemosa, is certainly a very inadequate one, because the inflorescences are not racemose, but form rather broad panicles. The name, candidissima, is very designative for such a plant laden with its snowy white blossoms.

This species was introduced many years ago, and is a native of the Eastern United States from Maine to North Carolina, and westward to Minnesota and Nebraska. I took the picture in the Arnold Arboretum years ago about the end of June. With us it sometimes flowers even later, and, as Mr. Bean states, it has much to recommend it as a late-flowering shrub. But he adds, "unfortunately it does not set its fruit here with the freedom that makes it so attractive in the United States," and I can add, on the European Continent, where I have seen good plants with their white fruits on bright red peduncles in the autumn.

C. racemosa is of a rather close, bushy habit, forming fine plants up to almost 16ft. in height. In the Arnold Arboretum a fine hybrid, C. Arnoldiana, between this species and C. obliqua (C. Purpusii), originated about thirty years ago. It flowers rather freely and even somewhat later than C. racemosa, but the fruits are very scarce. They are bluish. The habit of C. Arnoldiana is more like that of C. obliqua, a broader, more loosely branched shrub. While C. racemosa has greyish branchlets, the wood of C. Arnoldiana is purplish. C. obliqua is closely allied to C. Amomum or C. sericea, a well known species that has already been introduced from eastern North America in 1683. Its main feature is the silky brownish pubescence underneath the leaf.—CAMILLO SCHNEIDER.



THE BUSHY AND FREE-FLOWERING CORNUS RACEMOSA.

SOLANUM CAPSICASTRUM.

THAT bright orange-red and green-berried shrub, Solanum capsicastrum, is much in request about Christmastime for table and window adornment, and while one may cut back old plants after their fruiting season, re-pot, and grow them on, it is really from young plants that one may look for the best results. When it is remembered that one may sow seed in the warmth of a greenhouse in March, prick off the plants when well into their second leaf, and subsequently pot them twice, the final shift being into 4in. pots, it scarcely seems worth while troubling with old plants that not infrequently drop their flowers, if unattended to with water, at the first sign of dry weather. Summer treatment is met by plunging the pots up to their rims in fine ashes in a cold frame, with the lights off for the most part. It is an advantage to have the frame in a north position, to secure shade for a portion of the day. That is a practice which is generally followed, but of late years I have met with instances where Solanums, instead of being potted finally, when ready, have been planted out and left until September. What particular advantage there is in this I do not know, unless it minimises the trouble of watering somewhat; but it seems to me that to cram into a pot roots which by early autumn have spread, and at a time when the plants are full of green berries, is very risky and is likely to stop progress. Potting has to be done, no matter whether it be in June or September, but the earlier month is surely the better of the two. One cannot treat solanums in fruit quite like some other plants.—W. LINDERS LEA.

ABELIA SCHUMANNII.

THIS, a recent introduction from China, I consider to be the most beautiful Abelia yet introduced. It has especial merits which cannot fail to make it become a favourite with all who see it. With us, it makes a somewhat spreading bush, the young branches being pendulous with the weight of flowers, which the plant produces in the greatest profusion.

In colour it is distinct from other varieties of abelia, the flowers are produced from every joint of the young growth quite to the tips, and occur from pairs to as many as six to each joint. These are closely followed by a second crop on short lateral growths, easily making it the most free-flowering of all abelias. Their colour is a beautiful pale mauve with white throat and small orange blotch. They are 1in. in length by ⅛in. across the mouth. Generally, in shape they resemble a small pentstemon flower. Individual flowers remain on the plant for several days. Another point in its favour is its prolonged flowering period, the first flowers this year being produced in early June—they are still in full flower, and will continue so for several weeks to come. Also, it is evergreen, its foliage being about 1½ins. by ½in. in width and closely set in pairs upon the branches.

Owing to its fast growth and long, pendulous shoots, it is admirably suitable for a wall plant in the colder parts of this country. It thrives in good loamy soil, and does not mind lime.—JOHN HILL, *Paignton.*

PLANTS IN THE DWELLING-HOUSE.

THERE are many thousands of pot plants kept in dwelling-rooms in both good and poor conditions. The ventilation, the light and the general treatment has much to do with the condition of the plants when the latter are suitable kinds for the purpose. Where a greenhouse is available, it is very useful as the plants can be changed oftener than in cases where there is no greenhouse. Even a good, deep frame is a great help. I am not referring now so much to window plants as

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to those used as specimens in vases on tables in the rooms and halls. Naturally, such plants will not retain their normal health as long as those growing in large windows. Gas is bad for plants; electric light is much better. Open fires are better than stoves. It is not wise to attempt to grow very tender kinds of plants; those of a hardier nature will give the greatest satisfaction. Great things may be done with bulbs in season, and many thousands of these will be used in the dwelling house. They can be grown throughout without the aid of a greenhouse or frame—hyacinths, tulips, narcissi, snowdrops, scillas and crocuses. The berried Solanum capsicastrum is very fine in the autumn. For affording a patch of vivid colour the salvia is splendid, but the plants must be very carefully watered and never subjected to draughts. All plants will need careful watering as the rooms are warmed now. Clear water only should be applied, and no stimulants given except to growing bulbs.

POPULUS EUPHRATICA, THE WEEPING WILLOW OF THE BIBLE.

WHEN I first visited the famous arboretum of the late Mr. Allard at La Maulévrie, near Angers, France, I was very greatly impressed by the peculiar aspect of two young poplars, of which I took the accompanying photograph. It shows the strangest of all poplars, the famous Populus euphratica or diversifolia. This Oriental species, which is so entirely different from all other poplars, really represents the "willow" of the Children of Israel. It is widely spread from Algeria, through Egypt, Syria and Mesopotamia to southern Persia, north-western India, Mongolia and even north-western China. Sometimes it becomes a tree almost 65ft. high with rather slender spreading branches and almost pendent branchlets.

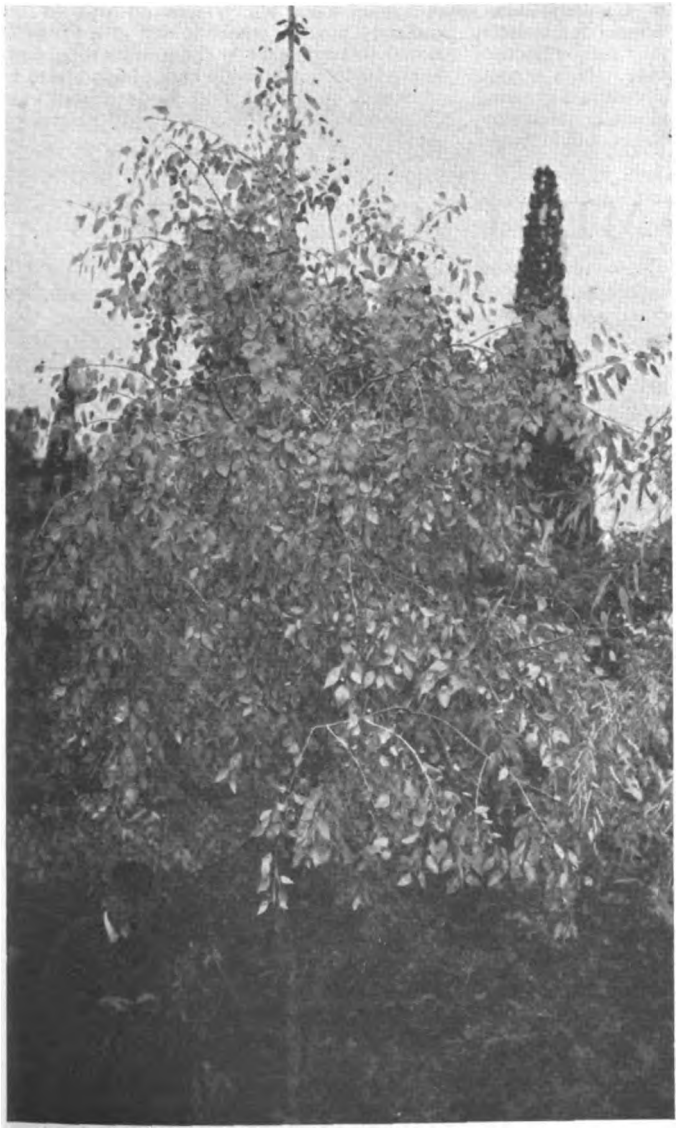
The shape of the leaves is very variable. On young shoots they are more or less willow like and entire, while on short shoots or older branches they become shorter and broader, rhombic or almost roundish, and more or less lobate-dentate. Both kinds of leaves may be seen on the same tree, but, as the picture shows, young plants often develop only leaves of one kind.

This strange poplar is not mentioned by Bean, and seems to be a rare plant even in British gardens. It likes, of course, a sub-tropical climate, but the forms of north-western China ought to be hardier.

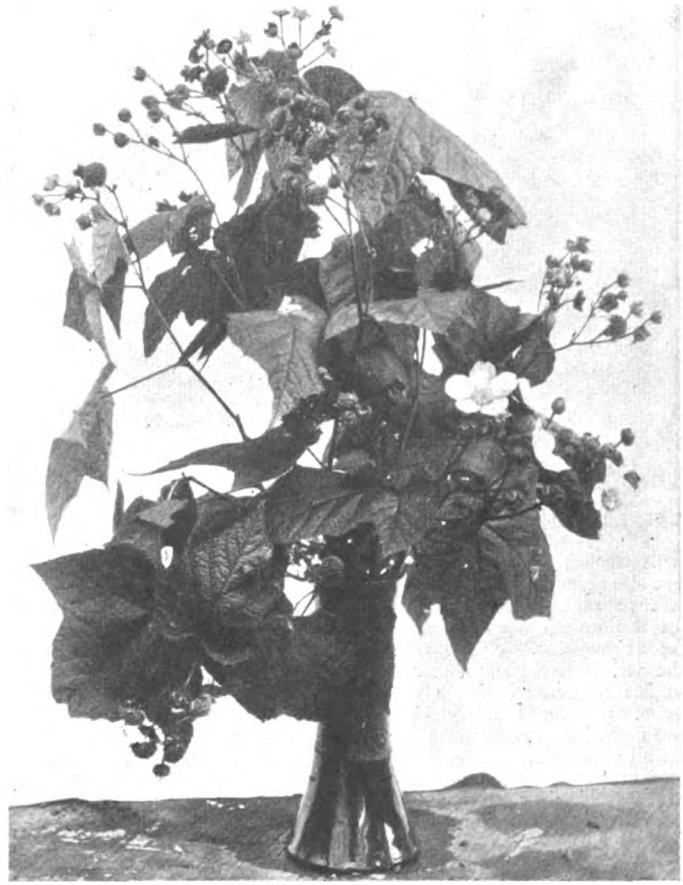
P. euphratica, to which P. ariana and P. Litwinowiana of Dode also belong, is the type of the section Turanga, with greyish green foliage, of which both surfaces are alike, and the downy buds are hardly viscid. The disc of the male and female flowers is rather deeply lobate at the margin, and the number of stamens varies from twenty to thirty. The ovary usually bears three stigmas. The glabrous bracts of the flowers fall off very early.

In a locality where it may be successfully grown this poplar is of the greatest interest to all lovers of peculiar woody plants.

CAMILLO SCHNEIDER.



A HANDSOME POPULUS, P. EUPHRATICA.



RUBUS ODORATUS, A FINE ORNAMENTAL SHRUB.

RUBUS ODORATUS.

DURING the months of August and September this ornamental rubus has been flowering freely, and this year quite a number of its fruits have been ripened. In the illustration both fruits and flowers can be seen, but the former are by no means numerous, and in proportion to the number of flowers on the plants the crop is a small one. Here, at Castleford, Chepstow, where the photograph was taken by my friend, Mr. M. Moulton, the plants are growing in a shaded part of a shrubbery and beneath a belt of pines. The stems attain a height of from 4ft. to 6ft., covered with vine-like leaves, and the flowers are borne in clusters at the end of the growths. Each bloom is about 1½ins. across, fragrant, and bright purple-rose in colour. The fruits are somewhat flat, red, and readily part from the core when ripe. The flavour is rather insipid. It is an admirable subject for semi-shaded positions; it is free-growing, and the stems are cut down to the ground level each winter. A native of eastern North America, and introduced to this country in 1770.—T. W. BRISCOE.

THE PARSLEY FERN.

MANY people have tried to grow the pretty parsley fern (Allosorus crispus), which, in certain localities, is so abundant in the north of England and Wales. As a rule these attempts have not been a success, for, even in places where the fern has not died right out, it does little more than hang on in misery. As a matter of fact, the parsley fern is quite easy to grow well even in a town garden if grown under the right conditions. Choose a bed with a northern aspect and insert the fern roots in a mixture of peat and loam. Naturally, the parsley fern grows up among rocks, and the best results are secured by half-burying the plant

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A FINE DRIFT OF RANUNCULUS GLACIALIS

with fragments of stones. These should not be placed right on the fronds, but, strange to say, a good heavy stone almost on the crown seems really to encourage a free growth. A clump of this fern which the writer had languishing for several years in his garden was fully restored to vigour by the placing of a slab of rock almost on the top of it. The bright green fronds pushed out on all sides of the stone, showing that the fern was at last growing under happy conditions. Once established in this way the parsley fern goes on increasing from year to year, and one can then realise what a very beautiful species it is.—S. LEONARD BASTIN, *Bournemouth*.

RANUNCULUS GLACIALIS AND CROCUS PULCHELLUS.

I AM enclosing two photographs that might, perhaps, be of interest to readers of THE GARDEN. The photograph of Ranunculus glacialis I took on Piz Langard, near Pontresina, early in July. It was growing there in the loose scree with the greatest luxuriance, often carrying five blooms on a stem and the blooms being nearly 2ins. in diameter. Geum reptans, Androsace glacialis and Eritrichium nanum were all growing in profusion in the same place. I saw the ranunculus on several other high points round Pontresina, but nowhere else looking so well.

The second illustration is of a bloom of Crocus pulchellus which flowered in my garden. This bloom carried ten petals, while from the same corm two blooms had five petals only, the remainder being normal. Can any reader say whether this crocus is given to variation in this way? I have had other blooms with seven petals.

My present stock of this crocus consists of seedlings from corms collected by me during the war on the hills above Kopriva in the Struma valley, Macedonia.—D. BLANCHARD.

PYRETHRUM CORYMBOSUM.

A GOOD border plant which appears to be strangely omitted from most hardy plant catalogues of the day is Pyrethrum corymbosum, which I saw after a long interval in the charming garden of Mr. C. W. Ralston, at Dabton, Dumfriesshire, where Mrs. Ralston and the staff cultivate a very fine collection of hardy flowers so admirably. It is a good hardy plant and useful for cutting, growing about 3ft. high, and producing handsome, dark green, finely divided foliage, and crowned

AN ABNORMAL BLOOM OF C. PULCHELLUS

with large corymbs of white flowers with a yellow centre. It is rather surprising to see it neglected in nurseries, especially seeing that it is marked with an asterisk, denoting it as a plant of special value in that standard, though now incomplete work, Nicholson's "Dictionary of Gardening." When that great work is brought up to date, this pyrethrum should, I consider, still retain the mark of commendation. It is a truly hardy plant, and one, also, which will do well in any ordinary border, where it will give plenty of flower in summer. At the present time, however, I do not know where plants are to be obtained, nor do I find seeds offered even by specialists in those of hardy plants.—S. ARNOTT.

THE AUTUMN TREATMENT OF LAWNS

MUCH activity is noticeable on lawns, tennis courts and bowling greens, and great is the need, for the long-suffering grass that has endured six months' hard wear, close cutting and, generally, a great deal too much rolling cannot recuperate unless assisted by judicious treatment while there is yet warmth in both atmosphere and soil. Unfortunately, a large proportion of the activity one observes may more accurately be described as misdirected energy than as judicious treatment. A lawn that has been trodden and rolled until the surface of the turf is as tightly compressed as a rubber mat will not benefit by being covered with a thick layer of wet, binding pit sand such as builders use for making mortar, but one may see lawns thus treated, the sand being rolled until it forms an almost waterproof and airproof sheet over the whole herbage. Little better is the fate of the lawn that is afforded nourishment in the form of an inch thick coat of short stable manure, once more forced tightly down upon the crowns of the grass by the heavy roller. Lawns require nourishment; they may also require sand; but each must be used with due regard to fitness.

Whatever else may be required, the first thing every lawn should receive at the end of a season's wear and tear is a thoroughly good sweeping. Should the surface be closely compressed, it is well to follow the sweeping by scratching with a sharp-toothed steel rake; and if badly hidebound—a term used to denote the condition brought about by heavy treading or over-rolling—perforations of the turf will do an immense amount of good.

One of Pattisson's spiked rollers or the spiked attachment to the "Atco" motor mower is of vastly greater benefit to a hard-worked tennis court than the hose and sprinkler; but for small lawns an ordinary garden fork may be thrust perpendicularly into the turf to a depth of 3ins., persevering with the work until the whole lawn is studded with small holes about 3ins. apart. These holes should be left open for a week, the object being to allow air to percolate into the soil about the roots of the grass.

In the meantime a good top-dressing should be prepared, and the precise character of that top-dressing should be governed by individual circumstances. A lawn resting on heavy clay or on a spongy soil that holds a great deal of moisture will benefit by the use of sand, but the sand must be clean, sharp, and have no tendency to binding. A good grade of sea sand is very useful, river sand or Bedfordshire silver sand being alternatives. If, on the other hand, a lawn is laid on dry, porous, sandy soil, either good, sweet leaf-mould or clean turf loam, finely sifted, will make the best dressing. Whatever soil is used should be free from weed seeds and from fungi or the eggs of ground pests.

Some kind of fertiliser must be incorporated with the top-dressing, but at this season of the year the need is not for a stimulant of rapid action, but rather for a stolid organic fertiliser that will improve the soil, dissolve or decompose slowly, and be available when the roots of the grass resume activity in spring.

Finely powdered hoof and horn meal is an excellent grass food. Bone meal is highly nutritious, but its tendency to encourage clover is a disadvantage on playing greens, where the slippery leaves constitute a danger to players. Various chemical firms make up special lawn manures for autumn and winter use, and there is much to be said in favour of using a lawn manure prepared by a well known firm.

Make it an unalterable rule never to give a heavy top-dressing at one time. A quarter of an inch thickness is ample for any one dressing. A fortnight after application brush the lawn vigorously to and fro with a good birch broom, and as soon as the top-dressing has disappeared apply another dressing. It is better to top-dress three times between October and March than to give one thick coat.

Lawn sand may be applied now to kill daisies, plantains and other broad, flat-leaved weeds. Crowns injured now by the caustic agents in the lawn sand will rot during winter, whereas in summer they often contrive to sprout from side crowns. Where lawns are infested with weeds of upright growth or narrow foliage it is prudent to hand-weed before top-dressing. A. J. MACSELF.

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THE BREAKING OF TULIPS

IN plant life there are many aspects similar to, but not exactly like, the feature of the breaking of tulips, their variegation from the self-coloured to the broken forms of blooms. This characteristic trait of the tulip plant, its custom of breaking or rectifying, is in many respects probably unique.

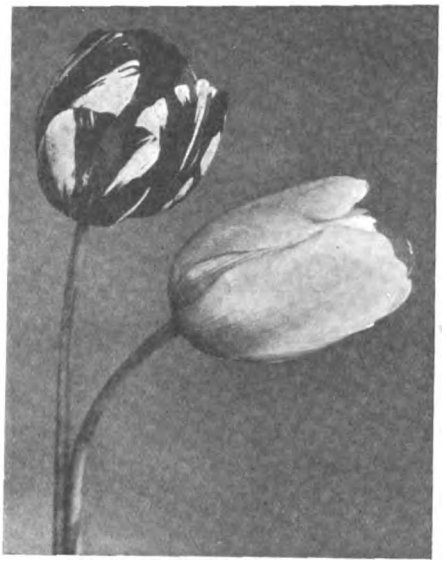
Centuries ago tulip lovers highly prized those blooms which had markings on their petals, that is to say the colouring matter was not suffused or evenly spread over the whole petal, but broken up and its particles of colour grouped together in regular or irregular forms, whether on the edge of the petal only or in some figuration of stripe or flame over the whole petal, and revealing more of the yellow or white ground colour than is seen in the self-coloured flower. The body colour may form shapes that are regular, identifiable and distinguished, such as feathered forms or flamed forms. In some varieties the break gives a mottled or marbled appearance to the colour of the petal, or perchance the petal is flaked with colour merely, and has lost the whole-coloured look. Some broken flowers look as though the colouring matter, if fluid, had gone sour, and lost its coherency; it may be the colouring matter is semi-fluid.

When the pigment—antho-cyanin—is thinly spread on the inner side of the skin of the petal, it seems to break more readily than is the case when the pigment is spread thickly, or is denser.

Darwins, with their thicker and fuller petals, do not seem to break so readily as the thinner-petalled varieties of the English group, or of some varieties of the Dutch and the garden groups; probably the stouter and sturdier varieties carry blooms with thicker petals than some of the more tender varieties can carry.

A short study of the life and habits of tulip plants will reveal characteristic tendencies that are very interesting, and some features that are fascinating, and the cultivator's mind is puzzled with considerations of the causes of the phenomena he observes; further observation and study only serve to make the mysteries deeper.

Blooming first from seed, a flower comes self-coloured, the resultant bulb may in a year or two, or in some years, throw a bloom that is figured or marked, the colouring matter of the petals having intensified and broken up into regular or irregular groups. In some cases the leaves of the plant also exhibit variegation, the chlorophyll having a somewhat streaky or striped appearance; there are, of course, broken varieties, the plant-leaves of which are indistinguishable from the leaves of plants of the same variety in the self or "breeder" stage. One does not change the name of the variety because it has broken—not in these days, at least. One's experience is that all tulips will break, sooner or later; we believe, however, there are tulips still persisting in the breeder stage that are a hundred years old, some we have seen, though most of the progeny have broken.



A TYPE AND ITS BREAK.

In the old days tulips that were broken were the desired blooms. Lovers of the flower who best knew its possibilities, had evolved certain kinds of broken forms: flowers that were feathered and flowers that were flamed—these were fine tulips.

Flowers that were in the preliminary self-coloured stage, breeders as they were termed, were tolerated and appraised for the inherent power they possessed of breaking, possibly as improvements on the parents from which they were raised.

The desiderata of those days were the form of the flower, the purity of its colour and the quality of its marking. In these aims great improvement was achieved by the old-time florists—to some extent, perhaps, in the case of the earlier English florists, at the expense of the constitution and vigour of the plant. In the case of the true Darwins, sturdiness is more in evidence, together with a lesser tendency to break. Whether delicacy of constitution increases the tendency to break or robustness of constitution mitigates the tendency is not yet established.

Let it be stated here, in parenthesis, some modern English florists have produced seedlings lacking nothing in vigour of constitution or purity or brilliance of colour. Such examples of recent origin are, as yet, alas, few in number.

The mystery of the break! Is it constitutional and inherent in the plant, and may it be promoted, perverted or stunted; or, not being an inherited trait, is it due to climate and environment, or to some disease that plants are liable to in general, and tulip plants in particular? When plants get old—that is, are a long time from seed—they seem to be more subject to disease, and to insect attack, which impairs the vigour of the plant even if no disease is thus communicated; often these older plants succumb to attacks that more youthful plants resist and ward off. We may see that some varieties exhibit a greater tendency to break than others, and some soils, or particular environment, seem to help the break; it may be found that a lessened vigour of constitution, resulting from starvation of treatment in plant life or ill-usage of the bulb in its quiescent stage—though plant life still goes on within the bulb—may induce break; can our learned plant pathologists tell us what causes the break in the first instance?

We see its results in both foliage and bloom, and note a diminution of vigour and a reluctance to yield off-sets, which phenomena may be relative to the break or may be due to poor nutrition, wrong environment or other causes. While

THE RECTIFIED FORM OF TULIP CORDELIA.

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many new seedlings bred from broken forms readily break and do not persist for more than ten years—some die out earlier, others later — there are varieties existing in the broken form that have " carried on " for sixty, some seventy, some have endured for one hundred years.

There are healthy and vigorous varieties, nearly a century from seed, still growing, and under proper treatment giving offsets, that have not been seen in the breeder stage in the memory of living man. If there be a disease, do some varieties become " immune," but never revert to their former stage, never throw self-coloured blooms ; do they, so to say, retain their " pock-marks " and still thrive ?

Many growers say that tulips have " gone back " to breeder, some say that seedlings have first bloomed in the broken condition and then reverted to the self-coloured stage ; actual evidence is wanting. It seems to emerge from our experience that " once broken, always broken," is the rule of the tulip plant, and that tulip seedlings first bloom as breeders or selfs.

In 1860 Headley records that out of a group of tulips he desired to break, only one out of twenty actually did so, and that one had been seeded. He afterwards tried similar methods with the others of the group, but finally gave up growing them, regarding the task of inducing break to be hopeless.

It was noted that breaks occurred equally in each kind of soil, so that one could not say a particular soil—such as a limy soil—made the break. In 1913 a year when many tulips broke with me, one bed of 120 bulbs of Clara Butt all bloomed in a feathered state ; these were solid in colour the previous year, the stock coming originally from Walter Ware, had been with me four or five years ; analysis of the soil showed a deficiency of nutriment, especially lime. It seemed to be established that it was a peculiarity of the season that caused the break.

(To be continued.)

C. W. NEEDHAM.

COLOUR FORMS OF ALPINE PLANTS

THE cultivation of special colour forms is the hobby of at least one of our most successful coaxers of high alpines. This form of gardening is far from the beaten track, yet every catalogue and botanical work bears witness to the real appeal made by the unusual. Explain it as you will, everyone is intrigued by the discovery of a wild patch of white heather, or of a four-leaved clover, and if of white heather, why not of white Erica carnea, and so on indefinitely, until what seems the pursuit of an aimiable lunatic, such as the attempt to cultivate a white Eritrichium nanum, links itself logically to one of the commonest of human traits.

The colours of many alpines vary so greatly from poor to indifferent and good, that a general rule should be, to see your plant in flower before you purchase or collect it. To dig up a plant on the hills when not in flower is invariably to take the risk of rearing a poor colour form.

Generally it is the albino that is sought by the collector. Occasionally the albino is more beautiful than the type ; frequently it is no less beautiful ; very often it is inferior. The attraction, nevertheless, persists. As, however, the word " albino " is only less ugly than its plural " albinoes," I shall not use it again. The very luck of white heather might flee if it were called " the albino of Calluna vulgaris."

Colour variations of blue flowers are most frequent in the hills ; next come variations of pink or red flowers ; and, a long way behind, of yellow flowers. Do there exist blue, pink or yellow forms of white flowers ? Maybe — in New Zealand. Has any antipodean plant-hunter happened on a blue form of the normal white or pink gentian or forget-me-not ? (It is interesting to find that the Antipodes actually do something really upside-down.) From the mountains of Europe I suggest a few, though I doubt if even these will pass scientific muster. There is a deep rosy form of Ranunculus glacialis which may be culled in armfuls on a certain red granite scree and is not merely the normal white buttercup pink-tinged after fertilisation ; it is deep rosy-red from bud. There is a deep creamy variety also, which might be a hybrid were it not for the complete absence round about of any yellow buttercup for mate. Then in that alpine Garden of Eden, far Hoch Obir, beloved of Rainer, Saxifraga squarrosa is not white, but pale yellow ; and it is related that somewhere S. diapensoides erupts into citron. Again, Burser's white poppy becomes Kemer's yellow poppy ; but you may object that these are different species, though Burnat disagrees with you. There is also the cœrulesans variety of the white Anemone trifolia, but there are several blue- or pink-tinged forms of white anemones, and until I see a really blue trifolia I do not feel confident about it. As for Androsace glacialis, is its normal form the white that alone exists in the Dolomites or the pink that alone exists elsewhere ?

I imagine the above colour forms are all in cultivation here and there in England—except the white eritrichium. I doubt if anyone ever got that alive from its precipices above the Vial del Pan or Passo delle Selle. Myosotis rupicola is well known, at least in catalogues. Some deny that there is such a thing, distinct from alpestris, at least in Europe. They may be right, but in any case there is a very high alpine forget-me-not, dwarf, large-flowered, with conspicuous geometric white eye, which has a colour all its own. In naming it " dawn-blue," I am plagiarising because I must. It is the coldness of the blue of the dawn made concrete in a flower. Then, before I leave the borage race, there is an exquisite white form of Omphalodes verna ; and Sir Herbert Maxwell has kindly words for Pulmonaria saccharata in his garden, though in this it is not the flower but the white or dappled leaf that makes the variation.

The campanulas are in dire need of a critical monograph, but he who undertakes it must be dauntless. The more I see, the more confused I become. Whether in the English garden or in the blue expanses around Misurina, the alpine campanulas hybridise without propriety in themselves or compunction for botanists. I still think of Mr. Clarence Elliott delving among herbarium specimens at Kew (as he promised in THE GARDEN last year), in order to decipher for us Campanula linifolia. White and silver forms of linifolia, Scheuchzeri, and all the twelve tribes of rotundifolia abound, and all are hall-marked. The porcelain blues of barbata vie with its silvers. The octaves of colour of pusilla's bells make names such even as Miranda meaningless, and cæspitosa from the Karawankens has an equal compass. To say, as Farrer does, that rhomboidalis ranges from midnight blue through lilacs and china-blues to silvery tones and whites, is to describe most alpine bellflowers. There are brilliant white forms of cenisia, excisa, garganica. Trachelium, persicifolia and patula. The beautiful white C. glomerata, and a porcelain-blue one, which I have seen only once—in the Eastern Julian Alps—are markedly superior to the somewhat heavy purple of the type, and, growing in deep pasture, were distinguished by a grace which does not usually characterise the plant.

Of the most august of the campanulas I should leave others to tell. " In a note in THE GARDEN a little while back," wrote Mr. Elliott in December, 1923, " M. Correvon mentioned the white form of Allionii as growing in Dr. Jenkin's garden, but Dr. Jenkin tells me he has not the plant. As far as I know, live plants of Campanula Allionii alba have never reached this country." In THE GARDEN of January, 1924, M. Correvon accepted it, " that the plant has disappeared from English gardens, and I believe he (Mr. Elliott) is right." Early in July, 1923, when I met Dr. Jenkin on the Mont Cenis, he had collected a plant on the Nunda which he hazarded from the leaves—for it was yet too early for the flower—might be a white Allionii, and in the spring of this year the garden at Hindhead duly displayed in richest white the large Canterbury bell of Allionii in its best form. I am often at a loss to tell a plant from its leaves ; I expect now to be told it is a poor botanist who cannot tell therefrom the colour of the flower ! At this rate I look forward to seeing the crocus king devising some rare corm beneath the soil by means of a witch hazel ; or the Laird of Monreith introducing a breed of rabbit which will not devour his favourite shrubs.

E. ENEVER TODD.

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CORRESPONDENCE

IRIS STYLOSA.

SIR,—I thought it might be interesting to the readers of THE GARDEN to know that Iris stylosa opened its first flower here on October 4th, and several buds are showing colour. The plants in question were only planted last spring at the foot of a stokehole wall, facing south-east. There is practically no soil where they are growing, only sandstone and cinder ash that the paths were made up with. Possibly the warmth from the stokehole accounts for it flowering so early.—A. J. SAMPSON, *Sussex*.

A NOVEL GARDEN DESIGN.

SIR,—Readers of THE GARDEN may be interested in the design of this part of my garden. Down the centre I formed a small "stream" some 6ins. deep and about a foot wide; this takes in the first place rain water, but is replenished by a hose pipe when necessary. This water course ends in a small, heart-shaped pool, in which I have a flowering aquatic. As a background finish to this pool is a small rockery, in which there are blue iris, Solomon's seal and montbretia. Although not seen from this point, a small weeping willow hangs over the water. In the broad herbaceous border are, as will be seen, violas, lupins (white, pink, blue and yellow), and forget-me-nots. Following these in due season are the usual perennials. The Michaelmas daisies in many varieties, are making a good show at the moment, with chrysanthemums, dahlias and cape gooseberry, and a fair display of late standard roses. Between the grass edge and the stream there is a small strip of soil planted with bulbs of all kinds to make a show for the spring, and the effects are most attractive.—N. M. WILSON.

A CORNER OF THE STREAM GARDEN.

COLOUR NOMENCLATURE.

SIR,—I was very glad to see the much needed article in THE GARDEN on the above subject. Some colourings in our flowers are indeed difficult to place, but there is no excuse at all for the loose and unscientific way in which the colours of some quite definite ones are misrepresented in nurserymen's catalogues. In 1917 I pointed out some glaring inaccuracies, such as Iris pallida dalmatica described as blue, together with our wild geranium and the violet, while the mauve Neapolitan violet is also described as lavender-blue. In one catalogue, picked up at random, we find Gladiolus Baron Hulot rightly described as rich purple, while in another it is said to be a deep indigo blue. The rich purple spring-flowering crocus is also described as blue; the mauve and white striped Sir Walter Scott figures as white with a blue stripe. The soft mauve Crocus Sieberi is catalogued as lilac-blue—it certainly cannot be both. Single poppy and St. Brigid's anemones are said to embrace shades of both blue and cobalt, but purple is not even mentioned! The same firm issue another catalogue in which the mauve wistaria is listed as a blue climber. Iris germanica is described as "the common blue flag," S, blue, F, purple. Most of us know that the standards of this flower are *not* blue, but a perfectly well defined rich purple.

In another catalogue a climbing rose is named Violet-Blue and is, or was, described as the nearest colour to a blue rambler yet raised. The true tint is a disagreeable faded puce. The word red is such an indefinite one that it might indicate any tint from a brick wall to a crimson or maroon-rose. The term salmon appears to cover quite as wide a ground, and therefore comes to mean nothing at all. I was glad to see "An Italian Reader" had drawn attention to the anarchy reigning in the description of yellow roses. Even the yellow crocus is wrongly described, if the fruit of the orange has a colour of that name. Again, there is a wide difference between the colours of the early purple orchis, the heather and the Iris germanica, yet they are all termed purple. Colour descriptions require a thorough revision throughout the whole range of vision and the old misleading descriptions scrapped once and for all.—H. H. WARNER, *Hoddesdon*.

TROPÆOLUMS.

SIR,—As one who grew Tropæolum tricolorum nearly fifty years ago, I should like to say what an interesting and showy plant the latter is when grown successfully. As your contributor, Mr. Hoog states, in the issue of THE GARDEN, September 26th, page 539, that if by any chance the thread-like growths are broken, the plant has to make a fresh start, and it is seldom that it recovers the same season. When growing freely, T. tricolorum requires almost daily training, otherwise the frail young green shoots are liable to become entangled. We used to train some plants to small trellises and others on birch shoots, similar to those used for making brooms.

Mr. Hoog did not mention T. azureum, which we used to grow in the same way. Its tiny flowers of lovely blue were much admired. It is even neater in growth than T. tricolorum, and although it is somewhat difficult to cultivate, the grower is well repaid when the plant is in bloom. These tropæolums were given similar treatment to that advocated by Mr. Hoog in his interesting notes. Tropæolums are evidently not often grown at the present day. It must be quite twenty years since I last saw them in cultivation. T. tricolorum and T. azureum were introduced into this country in 1828 and 1842 respectively.—J. MAYNE, *Eltham*.

VIBURNUM AND SPIRÆA.

SIR,—In Mr. Hillier's useful notes on Chinese shrubs (THE GARDEN, page 567), he describes the flowers of Viburnum Carlesii as opening before the leaves, which implies that, like V. fragrans, this species is deciduous. I suppose he has found it to be so, but on our mild west coast it retains its foliage throughout the winter, which greatly enhances the beauty of its pearly corymbs in spring. There is no shrub known to me with which amateurs have been more frequently disappointed owing to its being usually supplied grafted on our native wayfaring tree, V. lantana. The stock invariably pushes up vigorous shoots, and it requires constant vigilance to detect and remove them, the foliage of the two species being very similar in form, the only superficial difference being that the leaves of V. lantana are of a lighter colour than those of V. Carlesii.

Mr. Hillier mentions Spiræa Veitchii as one of the latest of the shrubby species to flower. It is past, however, before S. arborea has begun its display. That, at least, is our experience here. Mr. Hillier does well to praise S. arborea, for it is indeed the grandest of the genus and is not sufficiently well known as a woodland plant. I wonder whether he has found, as we have, that whereas S. arborea produces plenty of suckers as a means of propagation, S. Veitchii sends forth none.—HERBERT MAXWELL, *Monreith*.

WASPS AND DAHLIAS.

SIR,—I wonder if any of your readers have ever been troubled with wasps attacking their dahlias. I have grown them now for more than twenty years, and have never known it happen before this year. On returning home, after being away for a fortnight, I noticed that several of the dahlia plants were dying off, and was at a loss to account for it, until I noticed a number of wasps clustered roung the stem, close to the ground, and busily scraping off the bark, whether for food, or for some other purpose, I cannot say.

I did not know what to do to prevent them, but tried alum, so effective with slugs, and also painting the stems with cyanide of potassium, but the effect soon wore off, and they became as troublesome as ever; so eventually I wrapped the stems in fine wood shavings. This certainly prevented the wasps getting at the stems, though I noticed many of them trying to do so, but it was too late to save the plants, and all of those that had been attacked, gradually died off. Curiously enough the wasps did not attack the

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young, upper branches of the plant, which one would have thought would be much softer and easier scraped, but only the bottom of the main stem, a few inches above the soil. Can any of your readers account for it?—G. ANSDELL, *Salisbury*.

ROSE GOLDEN EMBLEM.

SIR,—I wonder if my experience will be of any use to Mr. Younger. I have found the only way to get good bushes of Rose Golden Emblem is to leave them almost entirely unpruned. I do not know what the ultimate result of this treatment will be. At first I pruned them in spring, as with the hybrid teas, with the result that after pruning they died back almost to the ground. Also, when cutting for the house, I used to cut them with as much stem as possible, *i.e.*, back to the second or third bud. The result was the bushes made no growth at all, and at the end of the summer would only reach the height of 8ins. or 9ins.

Now, beyond cutting out dead wood, I have practically given up pruning, and when cutting the blooms I cut with only the soft stem, or possibly with one leaf, and float them in a black bowl. Sovereign is treated in the same way, and both of these are responding well to such treatment and are throwing up strong, new shoots.

The soil here is very light and sandy. Pig manure was used when making the beds, and a good deal of bone meal incorporated in the top spit. A little bone meal is worked in between the summer and autumn blooming.—GWENDOLYN ANLEY, *Woking*.

BUTTERFLIES AND MICHAELMAS DAISIES.

SIR,—Now that the Michaelmas daisies are at their loveliest, I am struck by the fact that this year they lack their usual adornment of butterflies. In my fifty-yard border of these flowers I could only find to-day one Red Admiral, two small Tortoiseshells and one Comma, whereas last year the two former species and Peacocks also were present in large numbers, several on each plant. The Comma is never plentiful with me, but on a day of sunshine it was generally possible to find half a dozen. I should much like to know whether other growers of starworts have to deplore a like absence of butterflies this autumn—units in place of hundreds—and possibly some entomologist reader can give the reason why the usual "crop" has failed. To me, the attraction which Michaelmas daisies afford for butterflies is one of their chief charms. The flowers are beautiful, of course, but when jewelled with butterflies they are a real joy to behold.—R. H., *Stratford-on-Avon*.

PERENNIAL LOBELIAS.

SIR,—I have just been reading, with great interest, the article in THE GARDEN of October 3rd on Perennial Lobelias. When at Vincent Square on September 8th I saw my old friend Mr. Jacob engaged in earnest conversation with Mr. Ladhams, and I hoped to see an article in THE GARDEN. I can endorse all he says about these lobelias, as I have grown them for many years. Mr. Ladhams advocates dividing them in the spring, but I have never done so: possibly I should get even better results. I grow mine in my bog garden; they are quite hardy and seem to revel in the damp position. I came home on September 9th and found them at their best. One large bed with Mrs. Humbert outside and Southampton in the centre was particularly good. I agree with Mr. Jacob about "B. Ladhams," but I miss the dark foliage of cardinalis. Carmineus is a beautiful colour, and also Rose Queen. I have not got Shirley Beauty nor any of the purples.—(Capt.) H. G. HAWKER, *South Devon*.

AN ENQUIRY.

SIR,—A lady going out to Egypt in January would be glad to know how she could make a garden to her house near Heliopolis.

What plants can she grow out there, and what annuals can she raise? Ought she to take roses and plants, etc., from England or France? She would have irrigation, and would be most grateful for any information.—A. B.

APPLE REV. W. WILKS.

SIR,—I noticed, in your issue of October 3rd, mention of an apple, Rev. W. Wilks, shown at the R.H.S. Show. It may be of interest to your readers that we managed to grow one here this year of the same variety, of the following dimensions: weight, 1lb. 5½oz.; girth, 1ft. 3½in.; eye to eye, 7¾ins., which seems a good size for outdoors in Scotland.—R. G. D. THOMAS, *Auldgirth*.

LIFTING AND STORING GLADIOLI

SOME of my readers may have grown gladioli for the first time this year, and although I am quite well aware many will be fully conversant with the terms "corms" and "bulblets," yet I venture to explain in detail, so that all may follow. I have been surprised many times during this autumn at the lack of knowledge respecting the culture of the gladiolus which enquiries have revealed, and this has led me to surmise that it is not generally realised how easy this fascinating flower is to grow.

The gladiolus may be raised from seeds, from corms and from bulblets. The amateur grower usually buys corms for the sake of quick results. If one plants top-size corms in the early spring, each one should normally produce, one, two and sometimes three flowering spikes. By October, it will be found that a new corm has formed at the base of every single spike of leaves which has been thrown up, just on the top of the old corm. Where only one flower spike has been produced, the new corm will normally be larger than the old, but where two or more new corms have formed on top of one old one, they will be smaller than the latter, but usually large enough to furnish good flowering stems the next season. All round the base of the new corm or corms will be discovered miniature corms, ranging from the size of a grape pip to that of a large culinary pea. These are generally termed "bulblets," but are also known under the names "cormels," "cormlets" and "spawn," and they may number anything from a dozen up to a hundred or two round each corm. Several conditions affect the actual number of bulblets produced, such as the "age" of the old corm, the particular variety, the method of cultivation, the soil on which they are grown and the season. Some varieties always produce twenty times the number of bulblets to others if conditions are the same in each case.

So much for what one may expect to find when lifting one's corms in the late autumn. As regards the actual lifting; this should be deferred until the end of October to enable the new corms to become fully matured. The operation should be done carefully, so as not to injure the corms, and it will be found a good plan to leave the bulblets attached to the corm as much as possible. Gently remove adhering soil and hang up the entire plants, root downward, in some frost-proof outhouse to dry, or lay them out thinly on trays. When they have somewhat dried off, cut off the leaves and stems about an inch above the new corms, and break the old shrivelled and useless corm from the bottoms. Then store both bulblets and new corms in a similar manner to which one stores apples, that is, in boxes or trays (potato chitting trays are admirable for the purpose), one layer only in each tray. Keep them in a frost-proof and airy place until spring, but any degree of warmth should be avoided or they will get too dry and hard. This delays growth later on, more especially in the case of the bulblets. I need hardly add that it is wise to take care to label correctly, and keep each variety separate.

Although many amateur growers may not have the convenience, or perhaps the patience, to save and grow on the bulblets until they reach top-flowering size, yet it is certainly rather a waste to destroy the new corms. The latter may not flower quite as early or produce as large a flower spike as a top-size corm, but in the majority of cases, will give a very fair flower stem and make a larger corm for the next season. This is taking good cultivation for granted. Of course, if the plants have not been well grown on fairly good soil, and if the cutting of the flower spikes has been carelessly done, one must not expect vigorous young corms. The leaves are the lungs of the plant, essential organs which, in like manner to daffodils and tulips, must be not cut off until the work of forming the new corm has been completed. It may be impossible to cut a good length of stem with the flowers, and not to injure the sword-like leaves tightly enveloping it in the slightest, but this injury may be minimised, as I hope to explain in a future article. Too often it is the practice to make a clean cut right through the leaves and stem within an inch or two of the ground level, and I should like to emphasise the point that this cannot possibly be done without greatly jeopardising the likelihood of a successful crop of blooms from the new corms the following season.

Size is not all-important by any means, and I should much prefer a medium-sized, plump young corm, to a larger, but flatter, specimen.

One has to wait a little longer for bulblets to mature, but with expensive varieties, it may be well worth while.

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even to the amateur with little time or ground space at his or her disposal. Although they take almost as long to flower as do seeds, they have the distinct advantage of breeding true to type and colour (with the exception of an occasional " sport "), whereas seeds will give all colours. That is to say, bulblets saved from corms of Red Emperor will produce nothing but Red Emperor flowers, while seed saved from this variety may, and probably will, give numerous colours and shades, perhaps not one in the whole batch worth saving to grow again. It may not be out of place to indicate the correct treatment of bulblets. The best and quickest results may be obtained by sowing them in drills, one foot apart, as one would sow sweet pea seeds, on good, rich soil, soil that has been deeply dug and enriched with well decayed manure the previous autumn. Make the drills with a hoe 1in. deep in late February or early March, as soon as the ground is in a fit condition, and allow about an inch between each bulblet. Rake in a dressing of bone meal on top of the soil before making the drills. In many districts, unless some protection from frost is given for several weeks, there will be a serious risk in so early a planting, but this can be avoided by covering the entire surface of the soil with a layer of dead leaves or straw, with bushy sticks laid on top to prevent the wind blowing it away. Remove the straw as soon as all fear of frosts has passed. A moist soil is essential from the very first, and this can be maintained by watering in dry periods and continually keeping the surface loose with a hoe, but, of course, do not hoe deeply. The bulblets will be found to sprout or " germinate " unevenly, some throwing up their grass-like leaf blade very quickly, while others will remain dormant for weeks, months or even a year. Again, the bulblets of the various varieties behave very differently in this respect, some having the " dormant " tendency to a much greater degree than others. Needless to say, the bulblets should be kept free from weeds. A small percentage of those which first sprouted will bloom the first year, late in the season, but it is best to pinch or cut off flower spikes, as soon as they appear, to give the plant a better chance of making a good corm. Lift and store as advised for corms, and the majority will flower the following season. S.

PROPAGATION OF BEDDING PLANTS

THE time has arrived when the beds in close proximity to the dwelling-house will be cleared of their summer occupants, and replaced with plants that produce their flowers in the spring. In these days, however, the mixed border must not be forgotten : it ought to contain its due share of spring-flowering subjects, and here they look very attractive among the young foliage of the plants that carry on the display later on. Bulbs, especially the May-flowering tulips, play an important part in the scheme of spring bedding, also the narcissus ; but in these notes reference will be made to the plants that can be readily increased by division, seeds or cuttings. First and foremost are the wallflowers which are raised from seeds sown in May, and where this was done, and the seedlings transplanted a foot apart, a fine stock of bushy plants are ready for their final quarters. At the present time the varieties are so good that I prefer to see beds of wallflowers without any addition. A mixture of Orange Bedder and Fire King is excellent, and at a distance, with the sun shining on the flowers, they appear to be almost scarlet.

A well filled border or beds of polyanthus when in flower is a sight not soon forgotten, especially if it is shaded from the midday sun. These are increased both by division and seeds, the latter being sown either in the spring or autumn and given the shelter of a cold frame, although they will germinate freely in the open ground. When the seedlings are large enough they are put out in lines 1ft. apart, and here they remain until wanted for the beds. When it is desired to increase a special variety, division is resorted to, and this can either be done immediately after flowering or at the present time, when they are placed in the beds or borders.

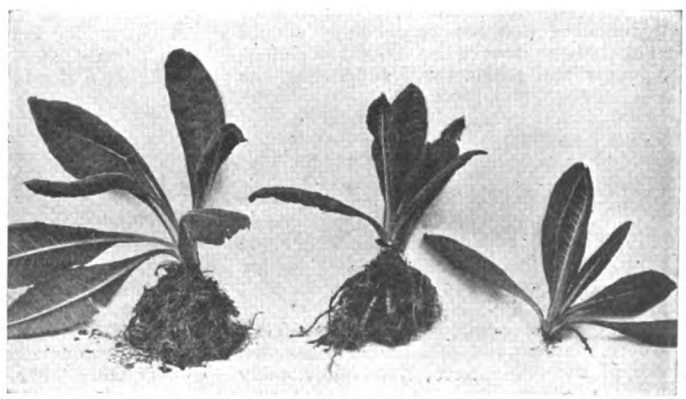
Where bulbs are grown in quantity, it is usually necessary to choose a small dwarf plant as the groundwork or carpet, and for yellow or white tulips the myosotis or forget-me-not is suitable. It is easily raised from seeds if sown in the open, but as a rule if a few odd plants are allowed to bloom in some out of the way spot, seedlings will appear in profusion. Arabis, particularly the double-flowering variety, is largely used in some gardens ; it is white, and in consequence it is available for a number of tulips and narcissus. It is propagated by means of cuttings, and if a few old plants are cut back after flowering a number of shoots will appear suitable for this purpose. They will form roots if placed in sandy soil in a cold frame and kept shaded from strong sunlight. Alyssum saxatile is another useful plant raised from seeds, which can be sown from March till May. It produces the most gorgeous, brilliant yellow effect. The aubrietias constitute quite a host in themselves, for they can be obtained in various shades from pale lilac and deep purple to crimson, although Dr. Mules is still one of the best. These are increased by cuttings and division. After flowering the plants are cut back, and the resultant new growths that will eventually appear can be utilised as cuttings similar to arabis. At the same time, the old plants may be divided and planted up in the reserve garden.

Violas are valuable for bedding purposes, and they are often employed as an edging to rose beds and borders, where they are very effective. Named varieties are increased by cuttings, and these can be inserted in sandy soil at this season, preferably in a cold frame. Select short-jointed shoots from near the base of the old plant, and often growths can be obtained with a few fresh roots attached. These readily establish themselves, and they should be removed to their final stations in the spring. In the meantime, keep them free from weeds, stir the soil occasionally, and admit plenty of air during open weather. Older plants that have been in the reserve garden may be lifted and placed in beds or employed as a groundwork for taller subjects.

Double daisies have come to the fore of late years, and they have proved most valuable for spring bedding, especially if beds are devoted entirely to them. Seeds should be sown in June, and the plants set out in the beds in October. They can be obtained in various colours, and choice varieties are increased by division after the flowering period.

Erysimum Golden Gem is a fine plant for spring bedding, being covered with its golden yellow flowers in early spring. Seeds should be sown early in the year, and the seedlings

THE METHOD TO BE ADOPTED IN THE DIVIDING OF HERBACEOUS PLANTS.



THE RESULT OF DIVISION.

grown on in the reserve garden. The various forms of primrose and the oxslip are often appreciated, and they will thrive in a partially shaded situation. Both can be increased by seeds and division.

A genus that should be represented in every garden is the pentstemon, and although they do not come within the range of spring bedding they can be mentioned, because now is a good time to insert cuttings. A cold frame is needed, and air must be admitted freely when roots are formed. T. W. B.

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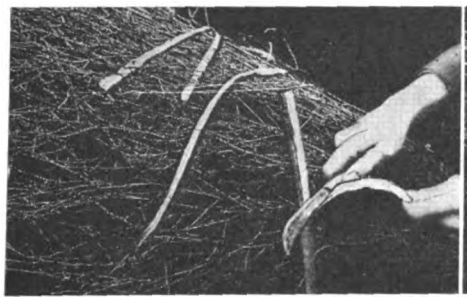
HOW TO MAKE A BIRCH BROOM

WHILE the fact may strike one that birch brooms are cheap enough without undertaking the bother of making them, there is the probability that many people are so situated that the knowledge of how to make a birch broom would be welcomed, possibly on account of the possession in quantity of the right kind of materials, and that it would provide employment for the gardening community at times when no outdoor work can be undertaken. There is but little skill required in order to make a passable and serviceable broom, and the tools are of the simplest order.

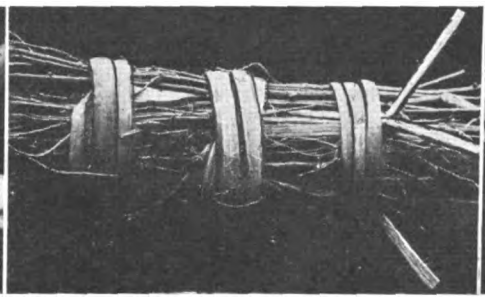
The materials required are, first, a supply of brushwood from the black birch, which is so plentiful in English hedges and woods, and some freshly cut hazel poles, which, again, present no difficulty to rural residents. Silver birch may be employed, but as its twigs are thinner and weaker, they do not make such a stiff broom as those of the black variety. Still, where a soft broom is required, one of silver birch is very useful, although it does not last very long. It will be realised, of course, that the professional broom-maker uses appliances that help him considerably in his work, but these need not be used by the amateur.

The birch twigs should be obtained from the woods during the winter and cut and trimmed into suitable lengths—from 2ft. to 2½ft. (or longer), according to the desired size of the broom. Both short and long twigs can be used; the end branches or side branches that are very twiggy should be selected, so that when bound together, the longer and stiffer twigs supporting the shorter ones, there will be a shapely and pliable mass of unbreakable twigs. The brushwood is sorted out and laid upon the ground branch by branch, all the while forming a symmetrical and even brush-head. This latter may be either pointed in shape or made perfectly level at the ends.

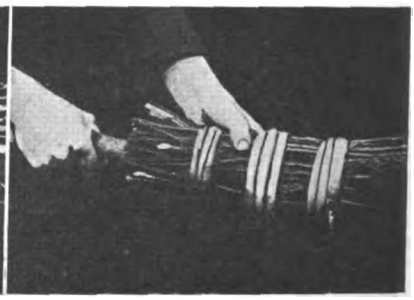
When a nice bundle has been made, procure a piece of rope (clothes line will be as good as any), and tie the bundle tightly, by means of a running noose that can be easily undone later on, one tie being made at the extreme end of the bundle, around the thick ends of the twigs, and another tie about half way towards the thin ends. Between these ties there is sufficient space to put on the permanent bands. These are strips of hazelwood with the bark on cut from a long, straight pole that has been freshly cut, the strip being about ¼in. in thickness or less, and from ½in. to ¾in. in width.



1.—MAKING THE BANDS.



2.—TYING AND BINDING THE TWIGS.



3.—FIXING THE HANDLE TO THE BROOM.

The process of binding is as follows. Take the birchwood bundle and, being seated, place it across the knees. Sharpen both ends of one of the hazel strips, and thrust one well into the bundle near the top or bottom cord tie. Now slowly turn the bundle round on the knees, meanwhile firmly pulling the strip perfectly tight as it winds around the twigs. When the other end of the strip has been reached, its sharpened point should be plunged into the bundle and drawn through the other side, the protruding end being cut off close to the bundle. Pull the band quite tightly and make a secure fastening.

A better way is to have a very long strip, give it three turns around the bundle, after forcing its end into the twigs, and then tuck the rest of the strip underneath the band, as shown in the second illustration, pulling it quite tightly and then allowing the free end to lie with the twigs of the bundle as though it were one of them. Then the next band can be put on a few inches down the bundle, binding it over the strip of the first band, its end being tucked in like that of the first band. A third band can then be wound round the bundle near the handle end in the same manner. This is clearly indicated in the illustration, the three strip ends, belonging to the three respective bands being clearly seen standing out from the bundle for that purpose. The three ties are far better than one or two, especially in the case of a large or heavy broom, which is the most serviceable.

In all cases the bands must be put on with a very firm hand, and the ends, whether forced through the bundle from one side to the other, or tucked in and incorporated with the twigs, must be made perfectly secure, otherwise they will not hold the broom together.

The handle has now to be fixed. This is sharpened at one end, and the operator taking the bundle in one hand, must force the handle into the midst of the twig ends, taking care that it is in the centre of the bundle. The handle can be rammed home to an extent that ensures a firm grip and no sign of looseness is observable. The cord around the bundle may be removed either before or after the handle is fixed. If the bands are firmly put on the cord may be removed as soon as the bands are finished.

H. A. DAY.

GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants.

APPLES IN SCOTLAND.

IN general the apple and pear crop has been more or less of a failure this year. Some of the apple trees, however, notably Lord Grosvenor, have borne abundantly. The fruits of this variety vary greatly in shape, yet on the whole are easily identified. An old tree of King of the Pippins has also fruited well, while a tree of Worcester Pearmain on the trellis has borne bright and highly coloured fruits of a good size. James Grieve, Lord Suffield and a few others have also carried crops of fair-sized fruits.

It was noticed that fruits borne by a variety called Beauty of Kent became more highly coloured between August 22nd and September 4th. No doubt the changeable weather, with cold in the mornings and evenings, combined with showers and sunshine in the daytime, has had much to do with the coloration of the fruits. This, unfortunately, is not a dessert variety, but its colour, shape and size of the fruits would almost warrant it a place on the dessert table. Mr. Bunyard has stated that Beauty of Kent is "a most valuable and somewhat neglected variety." — DAVID ARMSTRONG.

BUSH FRUITS: TIMELY THINNING-OUT.

DIRECTLY any wood, young or old, is not required, it should be cut out and reduced to ashes in the garden fire. It should not be left on the ground or in heaps in some out of the way place, as the leaves and wood may harbour insect pests. If this unwanted wood is retained it does harm through helping to exhaust the strength of the tree and prevent the thorough ripening of the new growths, because its presence prevents light and air reaching the branches retained. Perhaps the wisest plan is to begin with the raspberries. First cut out all the old canes, those that have borne fruit; these are, of course, useless for another year, and the sooner they are got rid of the better for the canes retained. As a guide, I may say, allow a space of at least 4ins. between the canes—6ins. would be better still. To ensure this it may be necessary to cut out some of the smaller canes. Do not tie up the canes retained now: leave them as wide apart as possible for a time, then they will ripen better. Black currants should be dealt with next; as these bear fruit on the young wood, remove the older, especially that near the centre of each bush. Nice, pink-coloured buds may be seen on the lower parts of the branches that are to be cut back; these buds will grow freely next year and be very useful as fruit-bearing branches the year following.

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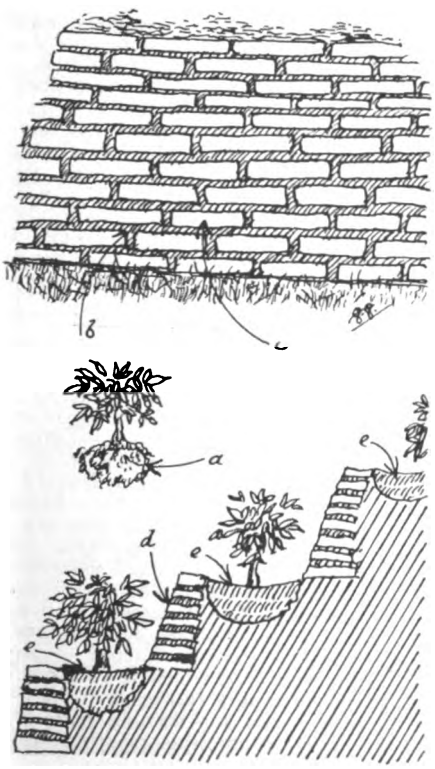
Loganberries require similar attention to raspberries, but the branches retained should be much farther apart. Red and white currants and gooseberries may have branches cut out now to prevent overcrowding, the pruning proper being done at a later date.

FORMING AND PLANTING BANKS.

BANKS are objected to in some gardens, liked in others; they are necessary in some, quite unnecessary in others. Of course, a very unsightly bank may be made beautiful if it is properly dealt with. I recently had the pleasure of inspecting an Italian garden which was entirely surrounded by high banks; everything was very correctly done except the planting, or, rather, the placing of the shrubs and trees; these were much overcrowded. The idea was to create effect at once; this was secured, undoubtedly, but at the expense of the future. For four years or so the plants would improve—their general effect, too; then drastic thinning-out would be necessary, or the shrubs would spoil each other, and, unless the thinning-out was timely and done by an expert, the general effect would be marred for many years. This reference to planting for effect will be helpful to those who are inexperienced in the matter. Now, we will deal with the subject of bank construction. Plants bought from nurserymen are generally well prepared for removal, as they have been duly lifted and replanted, possessing a lot of fibrous roots, compact, as seen at *a* in the sketch. Looking at the front of the new bank, we see that the joints, *b*, of one row of retaining turves come in the centres of the next row of turves—in the same way as bricks are laid. A sectional view of the bank shows, at *d*, a slight incline of each sustaining wall of turves; this gives added strength and durability. At *e*, *e*, *e*, some prepared soil should be placed



for the benefit of the new plants; this is especially necessary where the original soil is of poor quality.—G. G.

PEAT AS MANURE.

BOTH light and heavy soils need the addition of humus or organic matter, the former requiring not only to be enriched by it chemically, but also to be rendered more compact by its physical properties, and so less liable to lose by too rapid drainage the available plant food which it contains. Sandy soils are light in colour as well as in body. The darker a soil is the longer is it able to retain the sun's heat, and so the addition of humus, by darkening them, adds to the natural warmth of sandy soils.

Heavy marls and clays require the addition of humus for this reason, as without it they retain moisture for so long and in such quantity that in the winter and during wet seasons they are too cold to be fertile. In summer they lose moisture by evaporation and become baked and useless for plant life. If humus is generously added every year to these heavy soils these disadvantages are mitigated and finally overcome. Moreover, its presence in the soil releases the locked-up supplies of plant food which are in clay soils, and renders them constantly available for the plants.

Every horticultural student knows that the best way of adding humus to the soil is by incorporating farmyard manure with it. It is, however, becoming increasingly difficult to obtain farmyard manure for private gardens and nurseries, as the farmers need it all for their own use.

In France, natural manure is used in greater quantities than in England, on account of there being so much intensive culture in the market gardens of that country, and also because, in those parts of France which possess a Continental climate, and also in southern France, shrubberies, flower beds and massifs (beds of mixed shrubs and flowers) are mulched with a thick layer of half-rotted manure to retain the moisture. In those regions the summer sun burns and dries up the soil in a manner which is unknown in Britain. The ground is watered copiously when the mulch is applied and at regular intervals afterwards from May to October. For this mulching horse manure has been chiefly used, as it was also used in great quantities for general purposes of manuring of crops.

Now that motor cars, lorries and traction engines have almost ousted horses, and farmers will not sell their farmyard manure, the manuring of gardens of all kinds has become a serious problem in France. In the east and central east of that country, where the soil is practically pure limestone, as the names of the Departments of Marne and Haute-Marne indicate, the question of increasing the fertility of the soil is always an anxious one.

During the past few years specialists have been at work in the market gardens of those regions testing the fertilising power of peat, with a view to using it to replace farmyard and horse manures.

Peat, being pure humus, is consequently solely a nitrogenous manure, though its physical properties add to the colour and density of the soil.

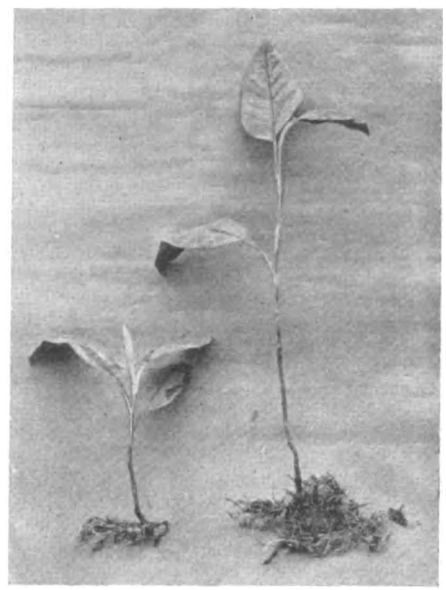
To bring about the nitrification essential to render the nitrogen in peat available for the plants, it is, of course, necessary that the soil should contain lime in sufficient quantity (hence the choice of the limestone districts for experimenting with peat).

The French agricultural chemists assert that the results of their experiments have proved that peat *alone* has no chemical effect on the soil, but if it is incorporated with a compost it produces *better* results than farmyard manure, and, like it, continues to undergo nitrification in the second year after its application. In districts where peat is easily obtainable it would be well worth while for gardeners to add it to their rubbish pit, where vegetable and household refuse, green fibrous-rooted weeds, lawn mowings and rabbit and poultry manures will supply additional nitrogen, and bones, woollen rags and old leather the necessary phosphates.

Potash, the third essential element for plant food, can be obtained from the wood ash of the bonfire where such weeds as docks, thistles, convolvulus, ground elder and couch-grass and cotton rags, papers, lumps of clay and prunings have been burnt.—VICTORIA SLADE, *Godalming*.

MAGNOLIAS FROM CUTTINGS.

ALTHOUGH it is generally laid down that propagation of magnolias is best effected by seeds, layering and, occasionally, grafting,



From left to right: A THREE WEEKS OLD CUTTING OF M. WILSONII; A HEALTHY PLANT OF M. PAVRIFLORA FROM A YEAR-OLD CUTTING.

readers of THE GARDEN may be interested to learn that certain species of this beautiful genus can be successfully propagated from cuttings. These are best made in July and August from the current year's wood and inserted in sand in a close propagating frame with a gentle bottom heat, where, it will be found, they root in time to become established before winter sets in.

Last year best results were obtained from cuttings of MM. Wilsonii and parviflora. These rooted quickly and have now developed into healthy young plants. Cuttings of M. conspicua var. elongata took longer to root and failed to establish themselves after potting, and only a small percentage survived the winter.

This year several species are being tried, and results, so far, are as follows: Cuttings of M. Wilsonii inserted on August 21st made quite a mass of roots and were potted up on September 13th; while a few cuttings of M. salicifolia inserted in July have rooted and appear to have become established in their pots.

Cuttings of MM. conspicua var. elongata, parviflora, Veitchii, Nicholsoniana, Dawsoniana, Sargentiana and Watsonii have callused over, and, with the exception of Dawsoniana and Sargentiana, they all look promising.

One curious point to be noticed in the propagation of some magnolias is that shoots which touch the ground when a branch is being layered will, if taken as cuttings, root readily. Last spring, when shifting a plant of M. Nicholsoniana, a cutting was taken from a small branch that had been sweeping the ground, and within a fortnight it formed quite a number of roots, and has grown freely throughout the summer.

Particular care is required when potting up the rooted cuttings, as the roots of magnolias are very easily injured.—F. P. K

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AUTUMN WITH OUR ROSES.

NOW that the rose planting season is upon us, the majority of rosarians are considering the purchase of new roses and of the preparation of beds to accommodate the new arrivals. This, undoubtedly, is wise, but there is a most important cultural item which deserves every attention, and that is, the ripening of the shoots of the established roses. The majority of people do not realise how important this fact is. All weak growths should be cut out from the base in order to let in sunlight and to permit of a free circulation of air about the shoots which are retained. This may be done by the placing of bamboo canes at suitable points in the bush, which will ensure the growths being perfectly ripened, and the roses next year will be all the finer for the trouble which is taken now. The roots should never be allowed to become dry during the winter months. Rather must they be kept in a moist condition. To allow a plant to become dry at the roots interferes seriously with its growth the following year and poor roses are the consequence. A dressing of the purest lime to keep the soil sweet and of steamed bone flour to encourage root formation can be given to the rose beds this month, and will complete their requirements and ensure a grand display of bloom next summer.—C. A. JARDINE.

PARSLEY, MINT AND THYME IN WINTER: STORED HERBS.

HERBS are always useful in the garden and dwelling-house, but they are much neglected in many gardens while growing and after they are gathered. The mint and thyme beds are often found to be full of weeds, which rob the plants of much nutriment. As both kinds of herbs generally remain undisturbed for a considerable time, more care is needed, in their case, in dealing with them, so that weeds will not gain the better of the legitimate occupants. If new beds are to be formed during the autumn, winter or spring, it would be labour well directed in thoroughly cleaning the soil first. This may mean deep digging; if so, the plants will benefit. A very rich soil is not required, a moderately rich one will do quite well and the plants will retain good normal health longer in such. Herbs are at full strength when they reach the flowering stage. If, however, the soil is very poor, the annual growth is correspondingly weak and there is not much besides puny flower spikes to gather and store. The rhizomes of mint should be laid in the soil at least 1ft. apart to allow for the spread and increase of these roots in due course. The bed should be several feet in width to avoid the growth of mint on paths; hand weeding is always the most satisfactory. Thyme should be thoroughly cleaned now, leaves and all foreign matter removed from beneath the spreading shoots. Parsley, if young, should be finally thinned as sturdy plants are more profitable than overcrowded weakly ones. It is well now to make provision for any necessary protection. Stored herbs are cleaner if covered with sheets of paper.—HANTS.

THE WINTER CARE OF SEEDS

THERE is a particular satisfaction, and indeed fascination, in saving seeds of a favourite plant and endeavouring to raise young plants from those seeds. The amount of success that will be achieved next season depends in no small measure upon where and how the seeds are kept until sowing time arrives in early spring.

The vitality of the germ of life in seeds varies to an extraordinary degree, and while some seeds may remain dormant for several years without apparent effect upon their germinating power there are many that become rapidly weaker, and practically useless before they are two years old. In the case of the more vigorous seeds it may be of little importance where and how they are stored between the time of harvesting in autumn and sowing in spring; but with such as are of fleeting vitality proper care and storage during winter makes a very considerable difference.

It may be taken as a general rule—although, as with most rules, there are a few possible exceptions,—that when seed has thoroughly ripened and dried it is best removed from its pod or husk. Up to a certain point very many seeds draw some nourishment from the pods or capsules in which they are contained, but when they have filled their cells with necessary moisture and nourishment they should properly become quite inactive and dormant until they enter the soil. The pods and husks, however, have, generally speaking, considerable life left in them for some time after the seed is ripened, and if put away in a dry place the moisture gradually evaporates, and as this goes on the pod will draw moisture through the porous skin or shell of any seed that touches it. Contrary to popular opinion, therefore, the natural seed vessel is by no means the best protector of stored seeds.

Equally bad, and in some cases worse, are bags or packets made of rough-surfaced, absorbent paper. Seedsmen of good standing who are obliged to keep many seeds in paper packets are careful to use a hard, glazed-surfaced paper; but in the case of many of the cheap packets of seeds handled by dealers with little technical knowledge the packets are made of cheap, inferior paper, and that is one among various reasons why low-priced seeds are not always cheap in the truest sense.

Better than paper of any description are small tins with tightly fitting lids, provided they are clean and have contained nothing of an injurious nature. Many of the choicest seeds, such as begonia, orchid, gloxinia, etc., are kept by growers and merchants in glass bottles with tightly fitted stoppers, and where one has a small quantity of seed to take special care of it is worth while bottling it.

A dark store cupboard where a cool but even temperature is maintained is best. It is an error of judgment to keep seeds near a fireside to ensure dryness, for while damp must, of course, be avoided, a high temperature is also disastrous. Mischief is sometimes done by placing seeds in bottles on a shelf where the sun, shining through a window, can reach them. Even in the winter, bright subshine is capable of heating the air inside a bottle much to the detriment of any seed. No seeds require light while stored; a cupboard is, therefore, the best place; or they may be kept in a closed box or drawer. L. A.

Sale at Messrs. Clarence Elliott's Nurseries, Stevenage.—On September 30th last a sale of plants was held at Messrs. Clarence Elliott's Nurseries, Stevenage, by Messrs. Protheroe and Morris of Cheapside. This proved to be remarkably popular, the attendance being so great and the commissions received so numerous that not all would-be customers could be supplied. Specially keen was the competition for the dwarf shrubs, of which large numbers of five kinds were included, but these proved to be insufficient to meet the demand. Rock and alpine plants, including many rare varieties and several novelties, met a ready sale, as well as the popular herbaceous plants, including asters, peonies and delphiniums. There were over 700 lots catalogued, but about twice that number were actually disposed of.

CATALOGUES RECEIVED.

The Constructional Engineering Co., Limited, Birmingham, send us pamphlet No. 138, giving particulars of the Titan steel barrow, which they are at present manufacturing. Such a barrow seems eminently suited for use in all large gardens and will prove much more serviceable than the old wooden type. This firm supply a variety of types, each of which has its particular uses. The prices do not compare unfavourably with wooden barrows of similar capacity.

Messrs. David Green and Son, Lytham, Lancs.—A catalogue for the handyman, at least one item of interest to gardeners is the wire cord which is offered. This wire can be readily employed in the tying up of plants, and for training peas, beans, etc., and for many other purposes in the garden it will be found admirable.

Mr. R. C. Notcutt, Woodbridge.—An extensive list of nursery stock, including fruit trees, shrubs and trees, alpines and general herbaceous. A wide selection is offered in all sections and especially in shrubs. The catalogue is illustrated by many excellent half tones, which bring out the character and beauty of the plants shown. Gardeners should procure a copy for reference purposes.

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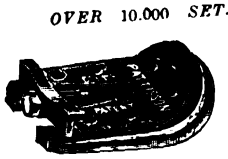


Fig. 1 for Shod Horses.

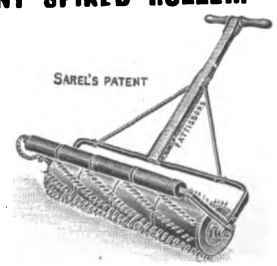
Fig. 2. Welted Boot.

HUNDREDS OF TESTIMONIALS.

The Field says: "As good as anything that could be devised." Mr. Wm. Hardy (Gardener to Lt.-Col. Hon. W. Guinness): "The boots supplied 17 years ago are still in use and have always been satisfactory."

SAREL'S PATENT SPIKED ROLLER.

COMM. HILLYARD, R.N., The All England Lawn Tennis Club, Wimbledon, writes: "The 'Sarel' Roller is invaluable for aerating the ground. It saves an enormous amount of labour and is most beneficial to the turf. I should be very sorry to be without such a valuable implement."



H. PATTISSON & CO., Streatham, London, S.W.16

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CURIOUS PLANTS

I HAVE bought some new toys which give me a great deal of amusement. They are succulents, not the juicy, gross creatures of our gardens, such as sedums and sempervivums, but those curious things which, we are told, live in places like Mexico and the Kalahari Desert in South Africa, where a few drops of rain dribble on them once a year or so. I had heard of people getting succulentiasis, or the craving for cacti and their weird relations, but I had looked upon them with pity, as I do unfortunate mortals who produce trays filled with broken rock or rows upon rows of preserved spiders.

In my own defence I must say that my attraction towards them has been gradual and perfectly logical. I like seeing living plants about me. I live in a flat, where the air is dry, and it is moderately warm. I have tried bulbs and various other plants in pots, but they dislike my climate and refuse to grow satisfactorily. Somebody told me that cacti would love my conditions. Apparently they do, and so I have a tray filled with curious-looking individuals that are like nothing else on earth.

Being entirely ignorant of their names, as well as of their interior economy, a stand at a recent show was so attractive that an order was given there and then, for it is only after seeing a collection that the ignoramus can pick and choose between the dozens of species and varieties. Now that they have arrived and have been leisurely examined during the past ten days, I can feel the fascination of them growing upon me. They are such sturdy, dumpy, ferocious looking inanimate objects. They arouse my curiosity. Why should one grow a beard out of the top of its head? Why should another look like a furry caterpillar with a pain? I can understand the fur, but why the serpentine twistings? Above all, why should these plants be christened with such terrible names? The names of Temperate Zone plants are bad enough, but these are dreadful. Perhaps their finders swore a solemn oath that they would get even with them for the discomforts of desert travel. If so, their revenge has been perfect.

The only one that has any pretence to beauty is a little plant that looks like a tiny aloe, called Haworthia verruculata, which has bright green leaves banded on the outer side with wavy ribs of waxy white. It is about 2ins. high and is very attractive. Then there is a creature called Stapelia mutabilis var., which sends up quadrangular spikes armed with hooks. The colour varies from green to the pinky-fawn of a well nourished slug. This is about 8ins. tall and is the giant among my pygmies. I am not sure that I like it; the fleshy spikes appear to have the same consistency as a pig's foot hung in a butcher's window. Next on the list is Pilocereus Daukwilzii, a species of old man's beard which is obviously ashamed of its nakedness and covers itself with hairs, dark brown on the body, cream-coloured on the top. This is an unsociable plant, for I began to barber its hair with my fingers and found that it was also armed with sharp spines under the hair; but I like it; it is what booksellers' catalogues would call "curious." One of the oddest has been christened Echinocactus minusculus. It is like a round green button with a concave top. It is covered all over with little fawn excrescences each with a little crop of stiff hairs sticking out. This is the most inanimate looking of all.

My tastes, apparently, run towards mamillarias, for I have a number of them, including the aforesaid caterpillar. The most formidable is not satisfied with defensive spines sticking out from what look like little green bulblets with a wadge of white cotton-wool between each, but has a name that would repel all marauders if it was as defenceless as an infant. It is called Mamillaria centricirrha. It must be a succulent morsel to make it form such defensive and ferocious prickles. The pigmy of the collection is M. Bocasana, a little round green ball covered with what look like dandelion seeds. Then there is one which is indescribable, called M. camptotricha. It is like an "old man's beard," with long spikes in process of turning into hairs. It is vaguely reminiscent of a sea urchin and also of a dish—I believe called a Kromeski—which is meat rolled in the finest of spaghetti and then fried. But this description is becoming involved, and I must stop.

These are fascinating plants and, I am told, flower in due course, and very pretty flowers too. They also have the advantage of doing best when left alone. It makes little difference if you forget their weekly watering, and they dislike re-potting. Such accommodating plants are so useful for a living-room. I feel an attack of succulentiasis coming on.

E. H. M. C.

OUR NEXT ISSUE IS THE SPECIAL AUTUMN PLANTING NUMBER WITH A COLOURED COVER.

PLEASE REMEMBER TO TELL OTHERS ABOUT YOUR PLANTS THROUGH THE COLUMNS OF "THE GARDEN."

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GROW MORE ARBUTUS

BY W. J. BEAN.

IT is rather remarkable how much this genus of evergreens is neglected in gardens situated where the climate is of average mildness. In the warmest counties of the west and south the choice of flowering evergreens is, of course, much greater than it is in the home counties and farther north, where, as a matter of fact, evergreens of the same character as the arbutuses are not plentiful. If we exclude the rhododendrons, the Portugal and cherry laurels, how many are there left which grow 15ft. high and upwards that possess so many attractions? Scarcely one I will venture to say.

Then, apart from their flowers and fruit and the rich green of their foliage, the arbutuses have one great additional charm—not present in many shrubs or trees—in the frequently beautiful colouring of the trunk and limbs, which, when old enough, assume terra-cotta or cinnamon hues. In large trees this may even be regarded as a chief attraction.

Why, then, are the arbutuses so scarce? Chiefly, I think, because they are not easy to transplant; few shrubs, indeed, are more affected by root disturbance. They are not adapted for the ordinary routine of nursery practice, *i.e.*, put out in rows or plots and transplanted occasionally until of saleable size. They must either be planted in permanent places while they are quite small, or grown on in pots, or transplanted with a considerable amount of soil firmly attached to the roots. Pot culture is the safest, but one has to guard against the plants becoming pot-bound, a state which induces a coiled formation of the roots and is likely to interfere with their subsequent development after being planted out.

Arbutuses do not seem very particular as to soil. They succeed well in sandy peat or light loam, and the commonest, A. Unedo, sometimes grows naturally in limestone formations, but I do not know about the others. The late Mr. H. J. Elwes stated, from his experience I suppose at Colesborne, that A. Andrachne "seems to enjoy lime in the soil." If that be so, then it will apply equally well to A. hybrida, which is a cross between that species and A. Unedo.

AN OLD TREE OF ARBUTUS ANDRACHNE AT MARCHMONT.

Arbutuses should be raised from seed whenever possible. In regard to A. Unedo, this is not difficult to obtain at home, for this species produces fruit fairly regularly, often in great abundance. Seed of A. Menziesii is usually included in the catalogues of leading American seedsmen. A. hybrida does not seem to ripen seed very easily and, along with its various forms is usually grafted on seedlings of A. Unedo.

Seeds should be sown in early spring in a cool or slightly heated frame or greenhouse. A little artificial heat will hasten germination. The seed, like that of most of the heath family, is small, and except for a slight sprinkling of sand should be on the surface of the soil, the upper layer of which, as for rhododendrons, should be finely sifted. As soon as the seedlings are large enough to handle, they must be pricked off about 2ins. apart into shallow boxes or pans. When 2ins. or 3ins. high, they can be put singly into pots and, when large enough, shifted into those of larger size. Plants in 6in. or 7in. pots should be large enough to put out in permanent places. If this early pot culture is not possible and the seedlings are planted in the open ground, care must be taken when transplanting to carry a "ball" of earth with them. With a transplanting machine or other apparatus for keeping the "ball" of earth intact, bushes up to 8ft. or 10ft. in height can be removed safely, as is frequently done at Kew.

So far as I have seen the arbutuses like plenty of sunshine. They grow quite well in moderate shade, as one may see them in the pine plantations at Bournemouth, but in such places they are frequently loose or even lanky in habit and do not flower or bear fruit so freely as in sunnier sites. I remember that on the coast and islands on the Dalmatian side of the Adriatic, where the summer sun is much hotter than we ever experience, A. Unedo grows fully in the open.

ARBUTUS ANDRACHNE.

There are a few examples of this speces at Kew from 10ft. to 15ft. high, but it is scarce in this country. I do not know of any nursery catalogue in which it is offered. Perhaps the best specimen in England is in the Botanic Garden at Bath; there is also a good one at Westonbirt. The bark on old trees becomes smooth and of a beautiful brownish red. The leaves are oval, considerably larger than those of A. Unedo, from which, as well as from A. hybrida, they differ (at least in the adult state) in having no marginal teeth. The flowers are dullish white, pitcher-shaped, ¼in. long, produced during spring in terminal panicles 2ins. to 4ins. long. I have not seen fruit developed in this country, but as one sees it in South Europe it is globose, orange-red and half an inch long, slightly rough, but much less so than that of A. Unedo. It is difficult to say why this species should be so much more uncommon than A. hybrida, as it was introduced more than two hundred years ago and in the south of England is quite hardy.

A. HYBRIDA. SYN. A. ANDRACHNOIDES.

Next to A. Unedo this is the commonest of the arbutuses in gardens, but in recent years it has become difficult to acquire. It is one of the shrubs which brings home to us how much we lost by the passing of the Coombe Wood Nursery, for they used to stock it and several of its forms there. These have been grown under various names, such as magnifica, photinæfolia and Rollisonii, representing superior or varying forms. Being a hybrid between Andrachne and Unedo, it naturally varies to some extent, although it is usually about intermediate between its parents. Its flowers are white and ¼in. long, opening in panicles both in autumn and spring. It can always be distinguished from Andrachne by the invariably toothed leaves and the glandular downy young shoots. From A. Unedo it differs in its larger leaves, smaller, less roughened fruits and by flowering partially in spring. The form known as Rollisonii is a good one, distinguished by its fine foliage.

A. hybrida is said to have originated in Osborn's nursery at Fulham about 1800, but that I should say is very doubtful. It is more likely to have been introduced, perhaps by seeds thought to be those of A. Andrachne, from Greece.

A. MENZIESII, THE MADRONA.

This Californian tree is not only the finest of the arbutuses, but the noblest of all the heath family. A few years ago

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THE FLOWERS AND FRUITS OF THE STRAWBERRY TREE.

Mr. F. R. S. Balfour of Dawyck showed me photographs he had had taken of a tree growing in the Marin county of that State, which had a short trunk girthing over 20ft. Drawn up by association with tall conifers, it is sometimes 100ft. high. It is, however, more handsome in the open where it forms a huge rounded head of branches. As in A. Andrachne, the leaves of adult trees are mostly without teeth, although on young plants or very vigorous shoots they are quite frequently toothed. Of oval outline and up to 5ins. or 6ins. in length, they are of a glossy, slightly metallic green above and glaucous beneath, much more glaucous than in any of these hardy species. The flowers open in April and May on terminal, erect, pyramidal panicles, being dull white, almost globose and fragrant. The fruits are orange red and about the size of a large pea. Among the arbutuses this is unsurpassed in its rich leafiness and the fine terra-cotta hue of its limbs and trunk. In a young state it grows vigorously and often so late in the season that the sappy, unripened tips are liable to be cut back by winter cold. Otherwise it is perfectly hardy. A specimen near King William's Temple at Kew raised from seed in 1894 is now nearly 30ft. high, its trunk 3ft. 8ins. in circumference. It cannot, therefore, be called slow growing.

A. UNEDO, THE STRAWBERRY TREE.

This is the only arbutus to be found in nurserymen's catalogues in general, but occasionally forms of A. hybrida are offered also. Although in the neighbourhood of the Killarney Lakes, where A. Unedo grows wild, it is occasionally a tree 25ft. to 30ft. high, one finds it usually in gardens as a bushy shrub of rounded shapely form. It has smaller leaves than any other of the hardy sorts, and they are usually 2ins. to 3ins. long, half as much in width, often broadest at the terminal half and always toothed. A good distinguishing character of the species is furnished by the numerous gland-tipped hairs on the young shoots. They occur also on A. hybrida (inherited from this species) but are much less abundant; on A. Andrachne and Menziesii they do not occur at all. The flowers are of the typical size and shape, and come in drooping panicles in autumn, being of a rather transparent white, sometimes tinted with pink. As an ornamental fruit-bearer this is by far the most attractive of these hardy species, the berries being ¾in. wide, brilliant orange red and roughened by excrescences on the surface.

VAR. RUBRA (or Croomei) is one of the prettiest forms, the flowers being of a very pleasing deep pink hue. It used to be grown in the Coombe Wood nursery, but is now uncommon, although a fine bush of it in the Kew collection is now laden with blossom.

VAR. INTEGERRIMA has leaves with no marginal teeth, while var. quercifolia has them deeply toothed; var. compacta makes a neat low bush with small leaves. None of these varieties is equal in merit to the type or the var. rubra.

Besides being wild in Ireland, A. Unedo is spread widely over south Europe from Spain to Greece; it occurs wild also in Asia Minor, Syria and North Africa. It has been stated that it was introduced to Ireland in the sixth century by the monks of the abbey of St. Finian, situated on the shores of Killarney. This has not been accepted by botanists in general, and the late Professor Babington maintained that the idea was inconceivable, as the tree was to be found in isolated spots, far up the mountains. I do not see that this is at all conclusive, because birds, which eat the fruits, might drop the seeds in all sorts of out-of-the-way places, assuming, of course, that they are able to retain their vitality after passing through the bodies of birds.

PANSIES AND VIOLAS

DURING recent years these pretty and useful flowers have been much improved. They are admirable for bedding purposes or for edgings along herbaceous borders, and they may be used with advantage in the rock garden.

Now is the time to insert cuttings which will produce sturdy plants in the spring ready for planting out in March or April. As long as the weather is open, cuttings may be taken till almost the end of the year, but the sooner they are put in the better, as they require four or five months to make strong roots.

A cold frame is the best receptacle for the cuttings, but I have used ordinary margarine boxes covered with sheets of glass, and if these are packed close together in a sheltered part of the garden they are practically frost-proof. In very severe weather they may be removed to a greenhouse if the cuttings are from scarce varieties.

VIOLAS FOR EXHIBITION, IN THE GARDEN OF MR. H. J. MILNER.
Winner of the Clay Perpetual Challenge Trophy in 1925.

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MAKING A COMPOST FOR THE CUTTINGS.

If the ordinary garden soil is of a light nature the cuttings will root readily in this if a little sand is added. A good mixture can be made from soil found in the hedgerows, which usually contains a good proportion of leaf-mould. A little well rotted manure may be added, and also a sprinkling of sand. All cuttings root more readily if a little sand is dropped into the hole where the base of the cutting rests.

SELECTING THE CUTTINGS.

Basal cuttings are the best, and these should be selected whenever possible. The longer growths, some of which may have borne flowers, need not be discarded in the case of rarer kinds, but all hollow cuttings should be thrown away. The cuttings should be 2ins. or 3ins. in length. Sever them just below a joint and remove all lower leaves. Trim off any that are damaged or decayed. Press them into the soil firmly and sprinkle a little sand between them. This helps to prevent damping off. Keep them fairly close for a week or two, afterwards giving ventilation on favourable days. In spring remove the lights when all fear of frost is past and gradually harden off before planting out.

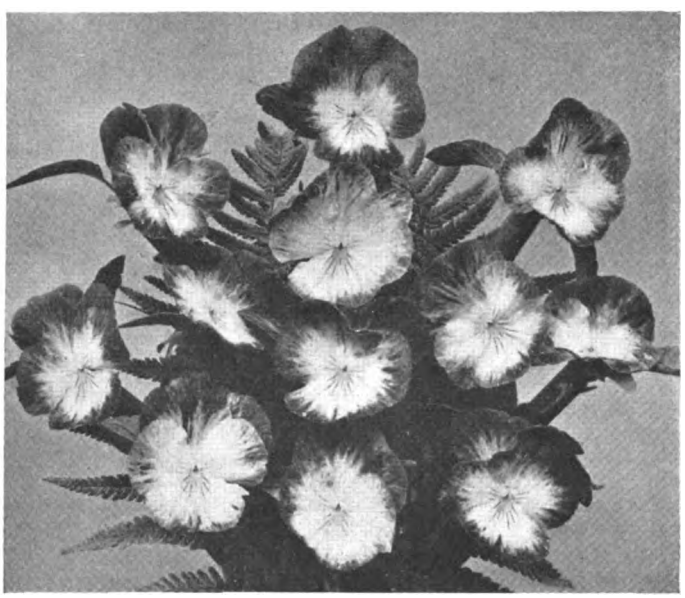
PANSIES.

The fancy pansy is most popular, and there is now a wide selection of varieties. The following would make a good collection for the beginner: Mrs. Andrew Frater, Mary Drummond, Annie Beveridge, Alexander Lister, Mrs. A. B. Cochrane, Jean Lister McKellar, Mrs. A. Paul, Nellie Cochrane, John Greig, Dr. Kelso, Miss N. Thomson and Susan Milligan.

There are a number of good bedding pansies. These are more compact in habit than the larger flowered kinds and they are more floriferous. One of the best is Bellfield, an ox-blood self of very rich colouring. This variety was raised and introduced by Messrs. Dobbie and Co.

VIOLAS.

Roughly, the violas may be divided into three groups: (1) the large-flowered kind that are exclusively used for exhibition and which have a somewhat "leggy" habit; (2) the large-flowered kind that have a tufty habit, and which may be used for bedding purposes or garden decoration, especially if grown as two year old plants; and (3) the purely bedding type. The latter are recommended for bedding or edging. They have a very tufty habit, strong growth, and, as a rule, are free-flowering. A large stock of these can soon be worked up, as they give plenty of cuttings each year.



MRS. CHICHESTER, A CHOICE BEDDING VARIETY.

The following is an up-to-date selection of bedding varieties: Swan (white), Maggie Mott (pale mauve), John Quarton (soft mauve), Mauve Radiance (deep mauve with a glossy sheen), Royal Sovereign (rich yellow), Lady Knox (cream), Jubilee (deep purple), Archie Grant Improved (deep indigo), James Pilling (white, edged with lavender), Mrs. J. Scalley (white, edged with blue), Master Bankes (lemon yellow), Tangerine (orange), Pride of Darras (white with a deep band of purple) and Mrs. Chichester (white centre, edged and flaked mauve).

The well known Moseley Perfection is a large-flowered type that can be used as a bedder, and it is very hardy, thus making a fine plant the second season. Other good varieties of this type are Mrs. J. Smith (white, suffused with lilac), Mrs. J. Fisher (cream ground, flushed and suffused with bluish purple) and Mrs. W. R. Milligan (white with edge of delicate pale blue).

An excellent selection of exhibition violas might include William Barr (white), Mrs. Andrew Stevenson (golden yellow with a broad band of bluish heliotrope), Kathleen Condry (purple) Rowan Hood (chrome yellow, belted with lavender), Jean Cowan (chrome yellow edged with pale lavender), John Adamson (orange yellow), Agnes Brown (glossy black with light lavender-blue top petals), Mrs. William Boyes (lemon yellow edged with lavender), Peggy Ramsey (cream suffused heliotrope), Moseley Ideal (pale yellow edged with mauve) and Mrs. H. J. Milner (white, edged with bluish heliotrope). The two last-named are 1926 novelties. Both are very beautiful flowers and useful either for exhibition or garden decoration.

NORMAN LAMBERT.

AUTUMN PRUNING OF SHRUBS

IN comparatively few gardens is sufficient attention given to the pruning of shrubs. If they are to attain their full value as decorative subjects, shapely specimens, attractive in foliage and flower, the pruning and regulating of their growth is as desirable as the pruning and thinning of fruit trees.

There is considerable variation in the treatment necessary with a present-day representative collection of hardy ornamental flowering and foliage shrubs. For the purpose under consideration, however, it is fairly easy to divide them into three main groups:

(*a*) Those which flower on the new growths of the season and which are best pruned before new shoots show signs of development in spring Good examples are Buddleia variabilis, varieties of Spiræa ponica and Hydrangea paniculata.

(*b*) Those which flower on the growths the previous year before mid-summer and, if pruned immediately after flowering, have time to make and mature new wood by the autumn. Included in this group are forsythias, Prunus triloba flore pleno and Philadelphus Lemoinei erectus.

(*c*) This is the largest group, as it includes two distinct classes—(1) those which flower in spring and early summer and produce ornamental fruits, *e.g.*, the wild roses, many barberries and the cotoneasters. Nothing can be done to these, obviously, until the fruiting period is over. (2) Those which flower on the previous season's growths, but develop new shoots about the same time. Examples are the new Buddleia alternifolia, Spiræa canescens and the majority of the philadelphuses.

THINNING.

A fair proportion of necessary pruning —the word thinning more correctly describes the work—is, for various reasons, carried out in autumn and early winter. The diervillas and philadelphuses are really better dealt with immediately after flowering, but stress of work in other directions may delay it. I am not sure that this is a disadvantage, as when the leaves fall it is easier to see which wood can be best removed.

Since the main object of pruning and thinning is to maintain healthy and shapely bushes, the work done should tend in the direction of obtaining vigorous clean growth. Begin by removing the old flowering wood, either right to the base if the stems are crowded, or prune back to healthy shoots on the stems. Next, remove the very thin weakly twigs, and finish, if required, by shortening a little, any extra long vigorous growths tending to destroy the balance and shape of the bushes.

The ornamental fruiting bushes which require attention forthwith do not form a lengthy list, but it contains several very important families of plants. Bushes

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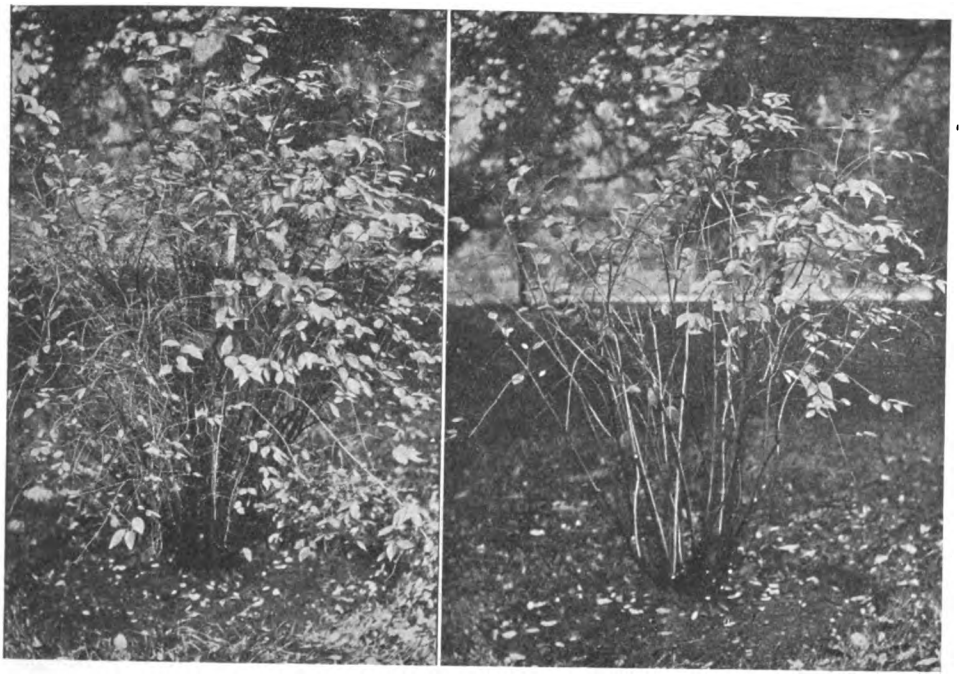

A PHILADELPHUS BEFORE AND AFTER THE REMOVAL OF THE OLD WOOD.

of the common barberry, Berberis vulgaris, B. polyantha and the new hybrids, so beautiful in fruit, can be much improved by a judicious thinning of the stems to encourage the development of vigorous, healthy growths. The rose species soon become a tangled mass if neglected for a few years. To prune them back hard as we do the bedding roses in spring would mean the removal of most of the flowering wood, while to prune immediately after flowering results in the loss of the showy fruits in autumn. These difficulties are overcome by the periodical thinning or pruning, not necessarily every year, of the plants, giving us shapely bushes, with finer flowers and fruits.

Among the cotoneasters we have some extremely ornamental shrubs, a fair number being very showy in fruit and foliage. Here, again, careful thinning and regulating of the growths usually lends a more graceful appearance to the bushes and improves the fruiting propensities.

After fruiting, the old stems of the following brambles should be carefully removed to display the beautiful colouring of the stems and the distinctive characters of the thorns or prickles: Rubus biflorus and var. quinqueflorus, R. Giraldianus, R. thibetanus and R. lasiostylus.

I can call to mind no plant which responds more readily to the care and attention of the good gardener than Symphoricarpus racemosus, the common snowberry. It is perhaps worth mentioning here that botanists regard it as var. lævigatus, as the typical wild type is quite a dwarf shrub, 3ft. or less in height. At Aldenham, by deep cultivation, liberal manuring and systematic thinning of the bushes, the beauty and handsome appearance of this shrub can be seen to advantage.

A few shrubs, both deciduous and evergreen, if they require pruning at all, only need it to maintain their shapely appearance, or to prevent overcrowding. In this category may be placed magnolias, which I should place first on the list of plants "the less pruned the better."

From the foregoing remarks it will be gathered that the season and the method of pruning varies with the habit and nature of the bushes. As distinct from this, however, there is no better time of the year than autumn for a liberal "thinning" among hardy shrubs. A. O.

NOTES OF THE WEEK

AN ABNORMAL SEEDLING PLANT OF MEDICAGO SATIVA.

I ENCLOSE a photograph illustrating the strange appearance assumed by a seedling plant of Lucerne (Medicago sativa). The plant on the left of the photograph is a normal one, at the fourth week after germination. It will be noted that the course taken is as follows; after the cotyledons, a single almost circular leaf appears, after which there is a succession of trifid leaves, each leaflet being oval with a typical extension at the distal end of each mid-rib. The first leaf in the case of the "freak" plant formed an inverted cone (slightly compressed in obtaining the photograph); in place of the first trifid leaf appeared a single misshapen cotyledon-like structure on a petiole, followed by a similar distally indented one at the end of a third petiole. After this the plant seemed to be asserting its normal habit, although the next portion of the foliage was unable to complete its three leaflets. The appearance of the unfolded leaflets suggests that the future history of the foliage would have been normal. Both plants are of the same age, although four petioles have been produced from the stalk of the abnormal plant.—P. H. H. GRAY.

[This is probably another case of a plant showing variation in its juvenile form before it assumes the adult habit. There are many plants which exhibit a variation in this transitional phase of their life history and it is difficult to say whether such abnormality indicates a reversion to an ancestral type or not.—ED.]

THE KANSAS GAY FEATHER.

THERE are comparatively few gardens in which the gay-feathers or snake-roots, liatrises or lacinarias, are included, yet they are plants of effective appearance, although there are some who consider their purple colouring a little too intense. But they are valuable among other hardy plants and almost every one is struck by their handsome feathery-looking spikes of flowers, especially in a large plant with a number of spikes. I saw a large vase of the fine Liatris spicata exhibited in a first prize stand of hardy flowers the other day and the spikes doubtless helped to gain the premier award for the exhibit. They were excellent, although the flowers, which begin at the base, as in the case with most, were not expanded at the top, as they might have been had treatment such as is frequently bestowed upon gladioli for exhibition been afforded them. I have known a good many fail of success with these liatrises, and it is sometimes difficult to diagnose the cause of the losses. Even in a light soil, the natural medium for these flowers, they occasionally fail. I consider L. spicata and L. pycnostachya to be the best of these gay-feathers, and L. spicata to be the finer of the two. A good border of light, well drained soil appears to be the best for them, and, when once properly established they should succeed for a number of years without disturbance. Planting is best performed in spring, and propagation is effected by division of large plants. Some authorities prefer the name of lacinaria to that of liatris, but the former appears to have the priority by about thirty years. There are one of two dwarf forms of L. spicata. —S. ARNOTT.

AN ABNORMAL SEEDLING OF LUCERNE.

TWO FINE AUTUMN-FLOWERING BULBOUS PLANTS.

THE two referred to are Amaryllis Belladonna, the belladonna lily, and Schizostylis coccinea, the Caffre lily or crimson flag. During the last week or two when on visits to neighbouring gardens I have seen some very fine borders of A. Belladonna, while at Kew there is usually a remarkably good show close to the main entrance. This is a splendid species and somewhat variable in the colour of its flowers. A typical form

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is a delicate pale rose shading to white at the centre, and there are also named varieties such as pallida, a pale form; rosea maxima, deep rose, which blooms a week or two in advance of the type; and purpurea, a rich purplish rose with a striking white centre. All flower about September, and the spikes appear in advance of the leaves. This plant requires a warm, dry and well drained position, and an ideal spot will be found in front of a range of greenhouses, also at the base of south or south-west walls. The rooting medium consists of loam, leaf-mould and sand, and now is a suitable time to select a plot and prepare the ground. The best time to plant is when the bulbs are dormant, and they should be planted 6ins. or 8ins. deep, surrounded with sand and left undisturbed for a number of years. When established they will flower freely. During their growing season, if the weather is dry, a thorough soaking of water will be beneficial.

Schizostylis coccinea produces its spikes of showy globular crimson-scarlet flowers during October and November, and if afforded a sheltered position on the rock garden or in a shrubbery border it presents a beautiful sight, while the spikes are most useful for cutting. It grows about 18ins. high and is a most valuable hardy plant from South Africa. The variety Mrs. Hegarty is similar to S. coccinea except that the flowers are a beautiful satiny rose pink in colour. It is a novelty worthy of a wide cultivation.

A suitable compost is sandy loam, leaf-soil and a liberal sprinkling of sand. This plant is a good grower and in a few years will become congested, when it fails to bloom freely. When this happens division of the roots will be necessary, and such work is best carried out in the spring. They should be planted in clumps of four or five shoots, about 9ins. apart. Apply plenty of moisture during the period of the plants' activity.—T. W. B.

ANEMONE APENNINA IN THE MASS IN WOODLAND SHADE.

ANEMONE APENNINA.

THIS Italian windflower is one of the easiest of anemone species to grow, and few are more effective in the spring garden. The narrow lavender-blue sepals are numerous, and with the central boss of cream-coloured anthers form a daisy-like flower, quite distinct from the star-shaped A. nemorosa, or wood anemone. Although always beautiful, even when waning, it is the newly opened blooms which are of the most brilliant blue, and a colony of this plant is never seen to such advantage as when the flowers are wide open and turned towards the sun.

One plant alone forms a charming little specimen with its divided leaves and numerous flowers; but it is when planted in extended colonies stretching away under trees that this windflower is seen at its best. In spring borders, it forms a fine contrast to the cream-coloured daffodils, such as Mme. de Graaff, St. Olaf, White Lady or Duchess of Westminster. It can also be planted to hide bare ground under Magnolia stellata, Forsthyia spectabilis and other early-flowering shrubs, as the anemones complete their growth before the shade above becomes too dense. The plant is of the easiest culture, and prefers light rather than heavy loams. It succeeds in all, however, if leaf-mould, sand or wood ashes be added to soils inclined to be heavy. The black, curiously shaped tubers are inexpensive, and should be planted in September or October. Given favourable conditions, they increase rapidly, and can be replanted with advantage every third year. A top-dressing of leaf-mould or decayed manure passed through a coarse sieve can be given in January with beneficial results. There is a white variety, but it is not so effective as the blue.—J. COMBER, *Nymans*.

TELEMLY SWEET PEAS.

SOME years ago I received a mixed packet of Telemly sweet pea seeds on the last day of November. On the following day, December 1st, the seeds were sown in six 4in. pots, four seeds being placed in each pot. Out of twenty-four seeds sown only one failed to germinate, and it is rather interesting to note that twenty-two seeds had germinated on December 14th, and some time later one more green tip appeared above the soil. On January 19th of the next year the plants were transferred to 7in. pots, potting on the four sweet peas as one plant, and staked. The late seedling was then only ½in. high, while one was 7ins. in height and the others were 6ins. The plants were carefully treated and shifted to the best positions as they grew apace, until eventually they were set in the conservatory. The first flower, a beautiful pale pink—a variety called Melody—opened on April 5th. The plants on that date were 3½ft. high. A pure white and a lavender variety each bore large and handsome flowers with good long stems. A crimson variety which was the last to come into bloom—six days later than Melody—was not so robust as the others; it did not grow so tall, while the flower stems were shorter and more slender, and only carried one bloom per stem. It may be worth while repeating what the Editor of THE GARDEN said in 1909 about the winter-flowering sweet peas. "Sweet peas have become amazingly popular of recent years and it is a flower that one never tires of; its freshness of colour and sweet scent are as welcome as those of the rose itself. To have sweet peas at Christmas is to bring the summer garden into the winter itself."—D. A.

THE DUTCH MYRTLE.

AN attractive little shrub well worth growing is the Dutch myrtle or sweet gale (Myrica Gale). The species is, of course, a native of Britain, and it is extremely common in the Lake District and also on boggy tracts in the south-western counties. The Dutch myrtle forms a little bush 2ft. or 3ft. high bearing neat leaves with toothed margins. These are of bright green colour and, more important still, they are most delightfully fragrant. In the old days the foliage was used in the hanging closets in order to keep moths away. The leaves of the Dutch myrtle remain on the plant until late in the autumn, and it is not very long after the fall that the catkins start to develop. These are in their full beauty quite early in the year, and they are by no means the least attractive feature of the shrub. In colour the catkins are of a very bright golden brown, which gives the little bush a most distinctive appearance. Although the Dutch myrtle is a bog species, it thrives in any moderately heavy soil. The fact that the ground is rather poor is an advantage, for then the bushes are much more compact in their growth and the leaves are usually more aromatic. The Dutch myrtle is a useful subject for the borders of the shrubberies, and the writer has even seen it growing in moderately dense shade. Propagation is easy, for practically any portions of the underground shoots, with a little bit of stem attached, will grow.—S. LEONARD BASTIN, *Bournemouth*.

NATIVE LYSIMACHIAS IN CULTIVATION.

JUDGING from the nature of notes on British plants appearing in various horticultural papers from time to time, one is led to conclude, and I venture to say, rightly so, that the present day horticulturist evinces a strong desire to become better acquainted with his or her native flowers.

To pillage the haunts of our rarer plants is, indeed, a sin, but to include some of the more plentiful, yet useful of wild flowers in the garden is to increase one's own knowledge and to add interest to the garden in the eyes of visitors.

Some natural orders of British plants are so composed that practically every species contained therein is sufficiently attractive to be grown in cultivation—such an order is primulaceæ.

The genus to which I wish to draw attention is lysimachia, containing as it does dozens of species, of which four are native.

L. nemorum, usually referred to as the yellow pimpernel is one of the most plentiful of the natives. Seen in its wild state it asks for admiration, for its dainty yellow flowers, arising singly from the axils of the leaves seem to glisten like tiny lights among the rich green leaves. Its flowering period is throughout June and July, or, maybe, a little longer. It is of a semi-procumbent habit and

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does best when given a shady spot along the bank of a pond.

L. Nummularia is known to all and sundry as Creeping Jenny, and though not so plentiful as L. nemorum, has nevertheless a wide distribution throughout the British Isles. Though in nature it seeks a fairly shady home, it is one of those very obliging plants which can be relied upon to do well wherever planted. Obliging plant this Creeping Jenny! but, to some, alas, a weed.

L. thyrsiflora, the Tufted Loosestrife, is the rarest of native lysimachias, and is restricted to a few places in the north of England and over the border. By reason of its lance-shaped leaves it is readily known from its kindred and is also characterised by the small yellow flowers which are borne thickly on a stem arising from the axil of a leaf. In cultivation it seems to enjoy a shady spot in a swampy part of the bog-garden.

L. vulgaris the yellow loosestrife, may be regarded as the tallest growing native lysimachia and is very commonly found along the river banks, particularly in the south of England. Though it enjoys best a shady place, it will, if required, adapt itself to the drier conditions of a garden and can be used with commendable results in the herbaceous border.—W. H., *Glasgow*.

SHRUBS IN ARGYLLSHIRE.

WHILE on a recent visit to Benmore, Mr. Harry Younger's estate in Argyllshire, which, as many of your readers are probably aware, has been gifted to the nation for forestry purposes, I was struck by the number and variety of shrubs which were doing so well in the shrub garden; and in view of the recent correspondence on shrubs in the West of Scotland, I thought readers of THE GARDEN might be interested to hear of a few.

One of the most interesting occupants is a fine specimen of Drimys Winteri, the Winter's Bark, which, from its appearance, is thoroughly satisfied with the west coast climate. At present it is about 5ft. high and gives every indication of becoming a sturdy shrub. The young, smooth shoots, tinged with bright red, and its bright pale green aromatic leaves, give a striking and handsome appearance to the shrub. In close proximity there is a good specimen of a conifer which is rarely seen in gardens, Arthrotaxis laxifolia. This has reached a height of from 9ft. to 10ft., and is of good habit. Although a native of Tasmania, it apparently finds the heavy moisture and mild conditions of Argyll congenial. Another interesting conifer to be seen is Fitzroya patagonica, a native of Chile, which is also thriving well and gives every promise of equalling a specimen which Mr. Dallimore quotes in his book at Stonefield, Argyllshire. A fine bush of Cercidiphyllum japonicum attracted attention by its brilliant autumnal tints, while near by a fine bush of Hypericum Hookerianum was laden with its bright yellow blossoms. The stranvæsias, notably S. Davidiana, and the euonymus, were a picture, with their clusters of bright red fruits, shown off to advantage by the background of foliage. The coral plant, Berberidopsis corallina is also to be seen growing well on a south wall, in association with solanums and clematis. When in full flower this evergreen is of remarkable charm, and although as yet of small dimensions, its beauty could be appreciated. Desfontainea spinosa grows exceedingly well and there are numerous specimens of 6ft. to 7ft. high and about 5ft. through. Another interesting plant which is rarely found outside and whose presence further testifies to the mildness of the west coast, is Myrica asplenifolia. Although it might not be termed a handsome shrub, yet it has a charm of its own. There are many other interesting shrubs, too numerous to mention. Pernettya grows everywhere, in association with Rhododendrons ponticum and campanulatum. One or two fine palms can also be seen in woodland shade and do extremely well. As for conifers, the number of species growing in that district is legion and each seems to try its hardest to outstrip its neighbour. It certainly would seem to be the ideal spot for all our exotic species, of which we have so many nowadays.

No doubt, the great success which has attended the cultivation of all shrubs in this area of Scotland is due to the heavy precipitation of moisture throughout the summer months, and to the absence of really hard frosts in the winter months. In addition, full advantage can be taken of the shelter of the hills to prevent undue exposure to the cold, north winds.

Although the foregoing is a somewhat meagre description of an interesting collection, it will serve to show that we need not be pessimistic about gardening on the west coast of Scotland. As your correspondent, Mr. Austin Mackenzie, says, many of the Argyllshire gardens contain plants of more than passing interest, and Benmore is one of these. It is indeed fitting that the gift of Benmore will, in all probability, lead to the establishment of a national botanic garden in this fine situation, where already there is a large number of interesting trees, shrubs and plants of botanical as well as of horticultural interest.—G. C. T.

THE WINTER'S BARK, DRIMYS WINTERI.

MYRICA ASPLENIFOLIA IN THE OPEN.

THE OLD DOUBLE LILAC PRIMROSE.

SOME of the double primroses are not only difficult to procure but are notoriously troublesome to keep without special care. One of the best, a good doer and free flowerer, is the old double lilac variety of the common primrose, P. acaulis. It frequently flourishes where all others have failed. But those who have experienced trouble with this and other double varieties should give them a good deep loam, a partially shaded position, plenty of water in dry weather in spring and summer, and should also take off some of the first flowers as soon as they decay. Some advise covering with a sheet of glass in winter to throw off excessive wet, but this old double lilac form does not appear to call for this. Plants should not be allowed to grow too large without division, which should be performed as soon as the flowers are over.—S. A.

FOR DEEP SHADE.

IN situations deeply shaded by trees, it is not many plants that will succeed. Those who have tried the various shrubs commonly recommended without good results will find a solution of the difficulty by planting the butcher's broom (Ruscus aculeatus). This plant, which is a hardy evergreen of exceptionally neat growth, will flourish where practically nothing else will grow. Butcher's broom thrives in the dense and unchanging shade cast even by such trees as hollies, yews and evergreen oaks. The large red berries, almost the size of cherries, which the ruscus produces are extremely handsome. To obtain these it should be borne in mind that the sexes are on different plants, and, on this account, male and female specimens must be secured and planted in close proximity. The butcher's broom is not at all particular as regards soil, and seems to be able to withstand great dryness and somewhat moist conditions equally well. Of course, Ruscus aculeatus is a native species, and, although rarely abundant, has an extremely wide distribution, at any rate, in England.—S. L. BASTIN.

A FINE YOUNG SPECIMEN OF ARTHROTAXIS LAXIFOLIA.

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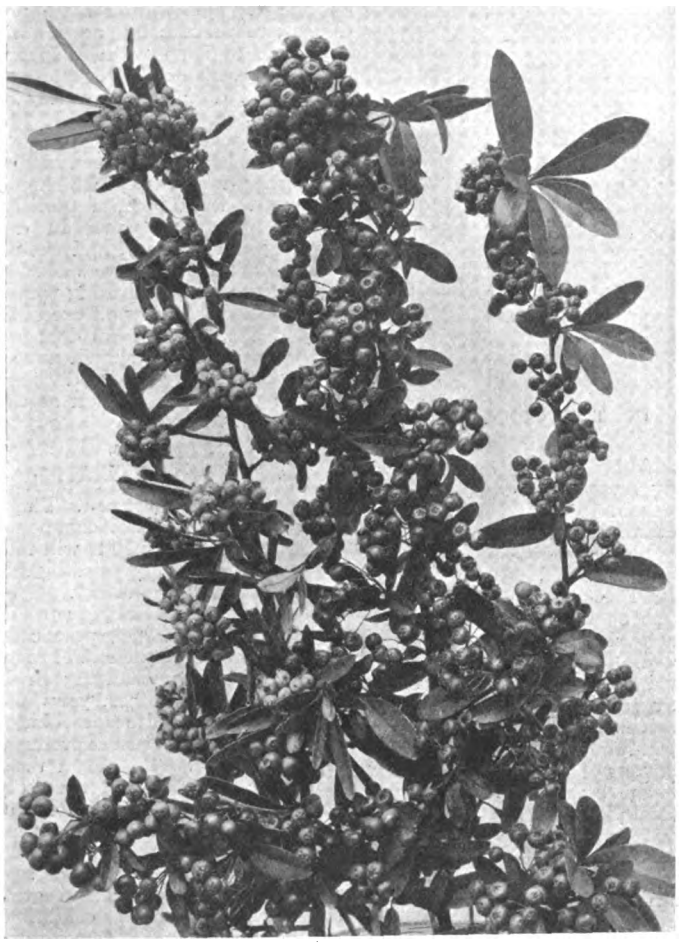
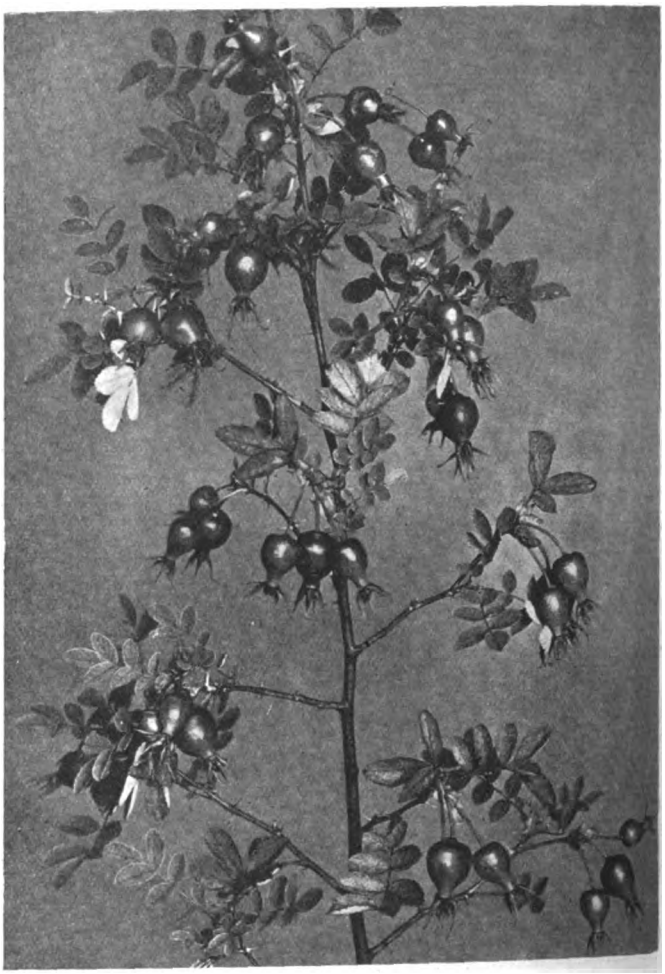
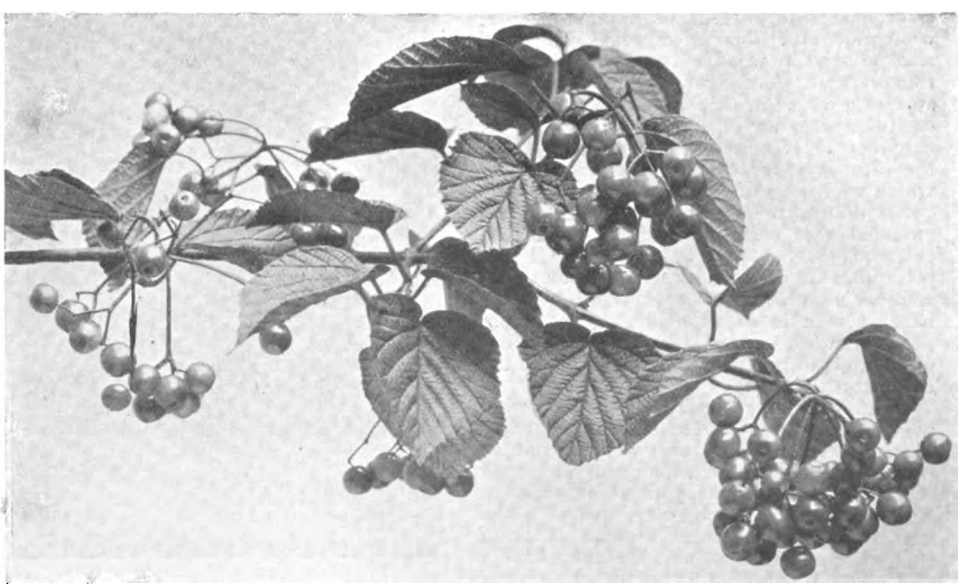
ALL GARDENS ARE MADE MORE BRILLIANT



The orange-red berries of Pyracantha coccinea Lalandei. This popular plant is typical of this free-fruiting genus, which is so often seen growing against a wall.



The majority of rose species possess beautiful fruits, and in some cases the plants are as handsome in the autumn as they are in flower during the summer. Our illustration shows the deep red hips of Rosa sertata.



Many of the fertile viburnums bear handsome fruits, among them the common guelder rose, V. Opulus. Our illustration shows one of the many Asiatic viburnums whose fruits are a distinct acquisition. Viburnum lobophyllum has handsome white flowers and shiny blood-scarlet fruits.

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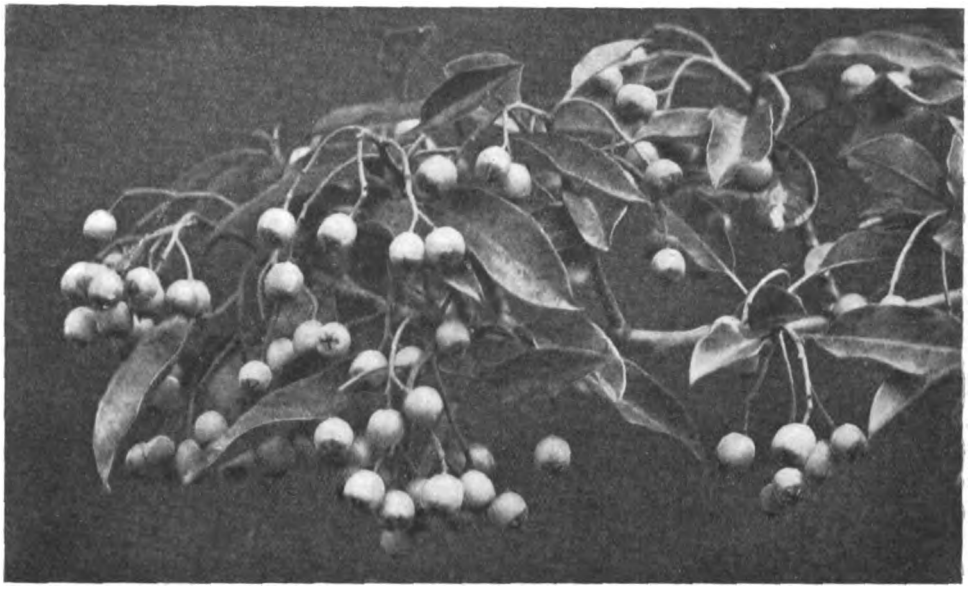
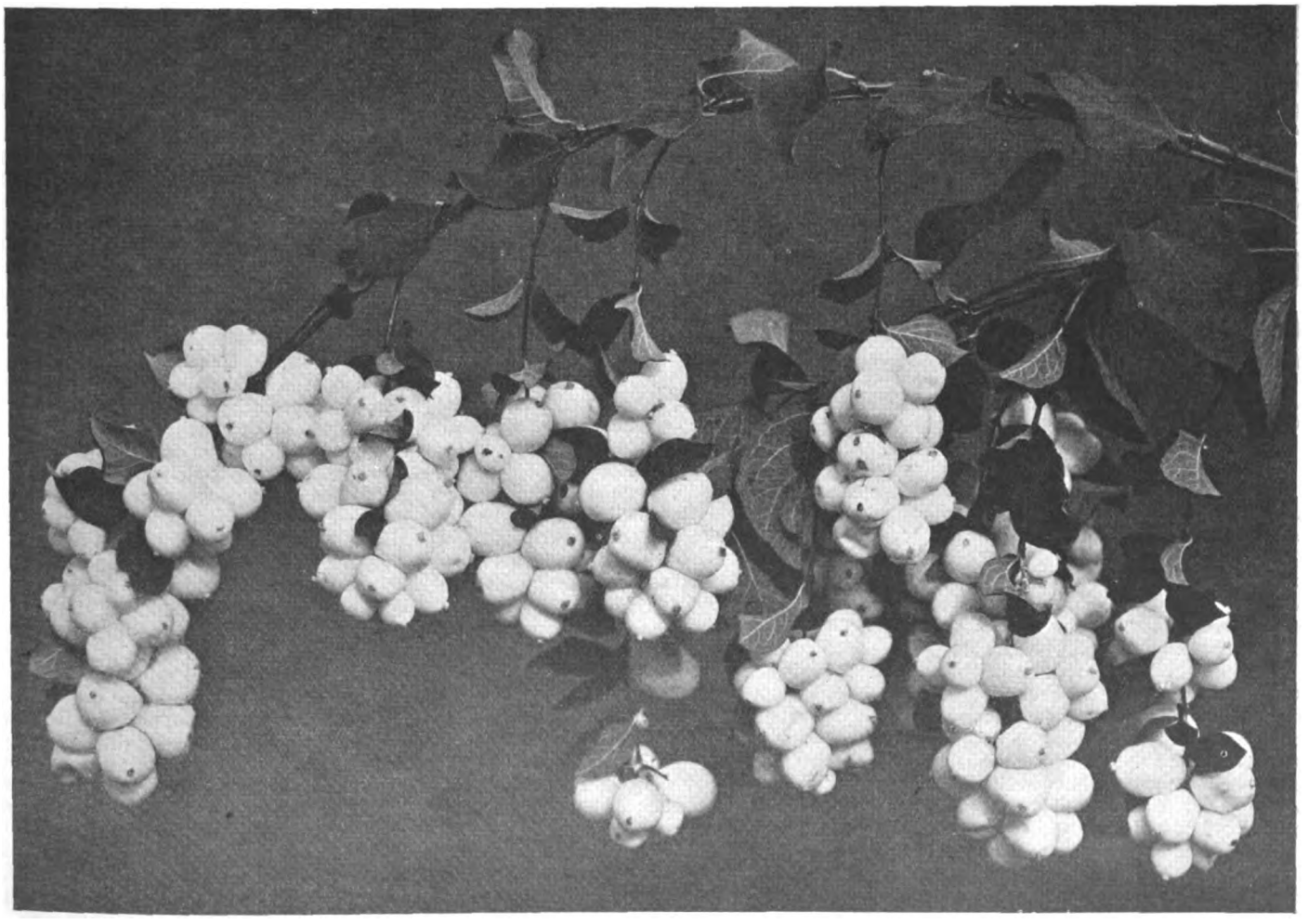
IN AUTUMN BY BERRIED TREES & SHRUBS

Another brilliant red berrier of late autumn, Stranvæsia undulata, is a native of China, where it grows to considerable size. The stranvæsias are an evergreen genus, close relatives of the photinias. They are all noted for their free fruiting qualities.





A handsome well fruited spray of Symphoricarpus occidentalis, commonly called the wolfberry, a close ally of the well known snowberry. This genus includes a few of our most ornamental shrubs for the garden, their chief attraction being the large clusters of beautiful white fruits which are retained well on into the winter.

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THE TALLER-GROWING HARDY HEATHS

FEW families of hardy flowering shrubs provide the gardener, and to a considerable extent the landscape architect, with such a wealth of material for mass planting and grouping in the pleasure grounds and open woodland as the heaths. Many large estates make a feature of a heath garden. In this, as a rule, the dwarf heaths predominate, but when free use is made of the subjects of these notes, they provide the planter with very much wider possibilities in securing distinct features and charm by effective grouping and massing. To mention only one valuable asset, a representative collection of hardy heaths provides a succession of flowers throughout the year.

ERICA AUSTRALIS, VAR. MR. ROBERT.

Most of the heaths do not thrive in soils containing any appreciable quantity of lime, exceptions being carnea, darleyensis and stricta. As is very well known, heaths predominate on peat land, but in gardens they do equally well on sandy, loamy soils if leaf-mould and peat are added when planting.

Autumn is the best season for planting heaths: when the soil is still warm, and the weather as a rule mild and favourable for the work. It is most important to transplant heaths with good balls of soil attached to the roots.

In addition to their own beauty in the garden and pleasure grounds, these taller heaths are very useful to provide protection and shelter for newly planted choice and rare shrubs, such, for example, as Eucryphias pinnatifolia and cordifolia Stuartias, styrax, magnolias, Disanthus cercidifolia, Hamamelis mollis and Viburnums fragrans and Carlesii.

E. ARBOREA.—Among the larger growing heaths this species is the tallest, attaining, in the milder parts of the country, the dimensions of a bushy tree up to 20ft. in height, with a distinct trunk. Hence the popular name of the "Tree Heath" is used. It is a native of southern Europe, north Africa and the Caucasus, and is said to have been first introduced to British gardens in 1658.

The white blossoms with a sweet, honey-like perfume, are very freely produced during the early months of the year, being at their best in March and April.

Its nearest ally is E. lusitanica (syn. codonoides), which is distinguished by a more shrubby plumose habit, longer, purer white flowers, and a lengthy season of blooming—from late autumn to spring. With a pocket lens it is easy to pick out E. arborea, because the hairs on the young shoots are branched.

The variety alpina is a native of the mountains of Cuenca, Spain, growing at about 4,500 ft. elevation. Compared with E. arborea it has stiffer and more upright growths, the leaves are a brighter green, and the flowering season is later. It is hardier than E. arborea, and is more attractive throughout the year, because of its rich vivid green foliage. First introduced to Kew in 1899, the tallest plants are now 7ft. to 9ft. high. The tiny bell-shaped white blossoms are very freely produced in some seasons, but without these it is worth growing for the rich green of the foliage in winter.

E. AUSTRALIS.—This is one of the most beautiful of all the heaths cultivated outside in our gardens. The flowers are bright rich rosy-red, freely produced during April and May. It is the least hardy of the heaths to which attention is drawn in these notes. We have not, however, experienced a really severe winter since that of 1894-95, when many plants were killed outright, though on several occasions, notably in 1904-5 the ends of the shoots were killed.

In habit the plants are more spreading than most tall heaths and vary from 4ft. to 6ft. high, sometimes more in the sheltered gardens of the south and west. The rich rosy-red flowers are borne in clusters at the end of the shoots, lasting for at least a couple of months.

E. australis is a native of Spain and Portugal, and is sometimes known as the Spanish heath. It has been cultivated on and off in British gardens since 1769.

As recently as 1912 the late Lieutenant Robert Williams, a son of Mr. J. C. Williams of Caerhays Castle, Cornwall, collected a white form of E. australis on the mountains of southern Spain, near Algeciras. Lieutenant Williams did not live to see his very valuable find flourishing in British gardens. He was killed in the Great War during the hard fighting near Loos in October, 1915, and it is fitting his memory and love for plants should be linked with this charming white-flowered heath, which Mr. Bean named variety Mr. Robert. As indicated by the illustration it is a typical E. australis in habit with attractive clusters of white blossoms. A most charming heath and worthy of being planted in large quantities in the pleasure grounds and open woodland.

E. LUSITANICA.—This is the most popular of all the taller-growing heaths in the gardens of the south and west, where it is a splendid winter-flowering shrub. In mild localities the plants commence flowering in October and continue right through the winter until April. In Dorsetshire and Cornwall large quantities are grown to supply cut sprays for market. As it lasts well when cut, there is very considerable market for such a charmingly fragrant, white-flowered shrub, not only in Covent Garden, but in the Midlands and Scotland.

At Lytchett Heath, near Poole, self-sown seedlings have spread over several acres of ground, the tallest plants being from 10ft. to 15ft. in height.

Though in the London district we place E. lusitanica in the list of plants liable to damage when we get degrees of frost near the twenties, it has withstood 18° and 19° of frost in Hampshire and Dorsetshire.

As the name indicates, E. lusitanica is a native of Portugal, and it also grows wild in Spain. Many nurseries use Lindley's name of E. codonoides for this heath, which, for profusion of flowering is unsurpassed by any other erica.

E. MEDITERRANEA.—This is more bushy in habit than the preceding species, forming close, shrubby specimens 5ft. to 7ft. or more in height. At Kew this heath has been extensively planted in large masses, giving a beautiful effect in spring and pervading the air with a delicious fragrance when covered with rosy-red flowers. The flowering season extends from March to May.

In typical E. mediterranea the flowers are rosy-red, the best form, grown in nurseries as var. superba has richer red flowers, suggesting the colour of E. australis. This is obviously the variety to propagate and plant freely. The white variety alba is a charming plant, not so

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robust in habit, but a very showy heath; var. hibernica, or glauca, is an Irish variety with bluish foliage of rounded habit, not so tall as the type. E. mediterranea is a native of Spain, western France and Galway and Mayo, Ireland.

E. SCOPARIA.—This is a native of central and western France, where, because of its use for broom-making, it is known as the Besom heath. As a garden shrub it is interesting and useful for shelter and shrubberies, but of no decorative floral value. The branches are of upward habit, 8ft. to 10ft. high. The greenish blossoms are very freely produced in May and June, but are not showy.

E. STRICTA.—This is a summer-flowering heath, and for that reason is worthy of much more attention from cultivators. The rosy blossoms are freely produced from June to September, the plants ranging from 3ft. to 6ft. or 7ft., sometimes more in height. It is hardy at Kew, though a native of southern Europe, Italy, Sardinia, Corsica and southern Spain.

E. VEITCHII.—This beautiful heath originated in the nurseries of Messrs. R. Veitch and Sons at Exeter. The plant is presumed to be a hybrid between E. lusitanica and E. arborea, as it possesses characters of both species. This chance hybridising was no doubt due to the work of bees, as both plants were, and are still grown in large quantities at Exeter.

Those familiar with the beauty of E. lusitanica in Dorsetshire and Cornwall, may have their doubts as to the hybrid flowering more freely than this parent. We think it does at Kew. In a bud state there is a pink tint in the flowers which gives place to a snowy whiteness. In mild weather the first blossoms open early in the year and provide a succession of fragrant blossoms until April. E. Veitchii is certainly one of the best hardy heaths and most effective for massing in the pleasure grounds and shrubbery borders. KEW.

THE BREAKING OF TULIPS

(*Continued from page* 600.)

IN 1863, out of 750 breeders planted by Storer—the raiser of "Dr. Hardy" and "Sam Barlow"—not more than fifty remained breeder. Similar results occurred with other growers: with Dr. Hardy himself at Warrington especially, and Dr. Horner, his protagonist in learned and scientific discussions on the merits of the flower. It must be remembered in this connection that every florist kept a record of the doings of each bulb and its progeny, and by the aid of his book could identify the bulb in book, bed and cabinet; the fifth in the fourth row, the sixth in the seventy-second row, and so on; a fresh book would be made at planting time, and the old records treasured and kept for reference.

In 1860 J. F. Wood, who had taken his bulbs to South Australia, noticed their tendency to "run to breeder," and grow so excessively luxuriant that they were out of character, he concluded they must be planted in poorer sandy soil. One has heard the expression "starve them into refinement"—of marking—used in days that are gone.

In 1863 Parkinson visited Hepworth and recorded "a phenomenon never seen before": of a bed of 33yds., planted with rectified tulips, containing about 1,400 bulbs, about one third of them had gone back to breeder, especially mentioning "Everard" and "George Hayward." "Everard" had not been known as a breeder before. "President" which he had shown in his twelve stand of rectified blooms the previous year, had now gone back to breeder. Authentic cases of going back are rare.

In raising tulips we find that seedlings are more vigorous and prolific in the first ten years of their growth than in the second ten years; but are not all plants more vigorous in their earlier years than in the later years of their existence? Do they not go off with a rush in youth and "sober down" afterwards?

Investigation into the diseases of potatoes has established several forms of "mosaic," and it has been shown that these diseases are transmitted from plant to plant by the action of sucking insects—aphides. Some American scientists ascribe the "breaking" of tulips to the "mosaic" disease; it is stated "all the classes of bulbs, hyacinths, narcissi and tulips, are more or less affected with mosaic disease."

It has been noted that tobacco plants have somewhat similar variegation in foliage and in bloom to that which characterises the tulip in the broken condition. In the ornamental tobaccos the similarity of mosaic and the breaking of tulips is said to be striking, but the disease aspect of breaking in tulips has not yet been definitely investigated. Experiments in artificial breaking of tulips have, so far, given results that are largely negative; it is claimed that breaking in other plants is caused by mosaic. The aphis is suggested as the main carrier of disease.

We are told that at Billingham, Washington, Dr. Griffiths has not had broken Darwins; fortunately, aphides have never been numerous there in the bulb fields of the U.S. Department of Agriculture, which are under his direction.

Last year, at lifting time, breeder bulbs were carefully stored in small bags, each bulb in a separate bag, and kept free from insect visitation; in the following blooming season about the same proportion of broken blooms were thrown by these wrapped up bulbs as by bulbs stored without the special envelope. On general principles one would desire to prevent the numerous visits of aphides, were it an easy matter, but to keep plants from visitations of insects requires more paraphernalia than an ordinary layman possesses, so no attempt was made to protect the growing plants even though the aphides "come in clouds."

THE TYPE AND ITS BREAK.

Some bulbs of broken varieties were, as an experiment, dressed with sulphur a month or two before planting, to see if a reversion to the breeder stage could be induced, but only negative results ensued in the following blooming time.

Many of our trade growers are perturbed by the numerous breaks they find in the Darwins and in the cottage varieties. They desire to keep to the self-coloured form and to discourage, if not entirely prevent, breaking.

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In earlier years the florists were concerned with the break and how to induce it; in these later years lovers of the tulip are concerned with the break and how to prevent it. The problem is the same, though the end to be desired differs. The old florists desired broken blooms, the well marked flowers; the multitude now prefer the self-coloured forms, and would keep their flowers in that breeder stage.

Maund, long ago, said the break is an abnormal state and suggested that the flower, when perfected in the estimation of the florist, is the production of an enfeebled plant, the result of old age.

In the absence of scientific evidence as the result of well ordered research, the idea prevails that breaking is a natural result, even though we know tulip plants and bulbs may be subjects of infection by visitations of sucking insects, and there are many phenomena that might lend countenance to the suggestion that disease is the cause of "break."

Hale. C. W. NEEDHAM.

CORRESPONDENCE

EUCRYPHIA PINNATIFOLIA IN WEST OF SCOTLAND.

SIR,—Readers of THE GARDEN may be interested in the enclosed photograph of a Eucryphia pinnatifolia in full bloom, 30ft. in height, growing in Sir Ian Malcolm's garden here. The shrub is a native of Chili and rather rare in this country, where it seldom, if ever, attains this height. The shrub in question is thirty years of age.—LADY MALCOLM, *Kilmartin, Argyll.*

A HANDSOME BUSH OF EUCRYPHIA PINNATIFOLIA.

GARDEN RUBBISH.

SIR,—With reference to Mr. Macself's article under the above heading in the issue of THE GARDEN for October 3rd, page 561, there are many points upon which I beg leave to disagree.

With regard to the use of farmyard manure, very little need be said. The results of its use for centuries have been generally so satisfactory that it will take more than the fact that such manure may carry infection to shake the faith of the average enthusiast in the use of this material in the form in which it is received.

Mr. Macself may wish to suggest that a certificate should be obtained from the vendor that all animals assisting in the production of the manure had been fed wholly on microscopically pure materials, but while waiting for this it is at least conceivable that some rash gardener will be found ready to take the risk of the pestilence and try the filth without a certificate.

Regarding the manurial value of garden refuse, however, the average gardener needs to be told that its chemical constituents are superior, weight for weight, to farmyard manure, because some of the vital constituents have been drawn from the latter in the process of giving nutrition to the animal.

He should also be told that, apart from the total destruction of humus, the incineration of such refuse results in the loss of all the nitrogen and most of the phosphates, while the potash remains in such a soluble form that it soon disappears unless preserved perfectly dry and applied to growing crops (which it never is). Under ordinary conditions, therefore, the value of the residue from incineration is almost negligible.

While many gardeners will be disposed to admit the value of properly decomposed garden refuse, they will be deterred from giving it a fair trial if they believe in the statements made that it will cause an increase in garden pests and diseases. Many a gardener will rather face a certain impoverishment of his soil than run the risk of infected soil and crops. Added to this many gardeners need very little encouragement in the use of the bonfire. In the opinion of many it is a much tidier and less laborious way of disposing of rubbish.

I have no desire to minimise the undesirable effects of plant pests and diseases. My contention is that the danger from this source is not lessened by the incineration methods advocated by Mr. Macself, neither is it more convenient if a properly controlled method of decomposition is followed.

I am convinced that the incinerator as a controller of pests and diseases is impracticable. Of what use is it to try to control potato blight by burning the haulm blackened by Phytophthora infestans when the damage is done and the soil and probably much of the surrounding vegetation are already infested? I had imagined that this disease can only be controlled by attacking it at an earlier period of its life-history.

Recent research in bacteriology indicates that in most cases more importance must be attached to the conditions governing development of a disease than to the mere presence of a disease germ. In many cases the distribution of disease germs is general, and only favourable conditions are needed for the germ both to multiply and to propagate the disease. A healthy well nourished subject is the governing factor in combating disease, and under these circumstances it is of little use to destroy a few germs or spores unless all the gardens in the neighbourhood are sterilised. Mr. Macself would carefully burn up all the diseased stems and leaves that can be collected, but he conveniently ignores the myriads of bacteria on the ground and on the stems and leaves of permanent plants. Further, in respect of these colonies of disease which he has succeeded in bringing to the furnace, he does not enlighten us as to the method of chaining them to the stake.

I contend that the controlled method of decomposition is likely to be more effective in destroying harmful germs and seeds than any method of incineration.

I have dealt with the theory of the subject at some length, but the merits of every question must in the end be judged by results. I am content to base my main challenge to Mr. Macself on the results obtained at Pyrford, where for many years the theory outlined above has been consistently and wholeheartedly practised, that is to say, the bonfire has been wholly barred and vegetable refuse of every description, including the filth and pestilence, has been subjected to controlled decomposition.

The result is that a waste of heath and scrub has been converted into a productive garden largely without the aid of farmyard manure, while the attacks of pests and diseases are normal and stationary.—W. AUTON, *Pyrford Court, Woking.*

[In this, one of the most controversial questions in the gardening world, it may be safely stated that organic matter is required for manurial purposes in all gardens, and whether one uses garden rubbish or farmyard manure, it is well-nigh impossible in practice to obtain it free from fungus spores or the eggs and larvæ of insects. Authorities are agreed that sterilisation is next to useless unless carried out on a huge scale, which is impossible owing to the rapidity of breeding of insects and the production of fungus spores which blow readily from place to place. In our opinion, it is unlikely that any garden will ever be free from pests of some description. It may be said that the heat of fermentation arising in a well made heap of vegetable refuse is generally adequate to destroy the majority of insect eggs and larvæ. The danger, however, appears to lie with fungus spores and cysts (whose distribution, it may be mentioned in passing, is almost ubiquitous), which remain uninjured in the process. Against

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many no remedial measures can be taken. For example, potatoes infected with wart disease must be excluded from the rubbish heap and burned as soon as found, as with brassicas infected with finger and toe. It is a case in point where general rules cannot be laid down, and the gardener must use discretion in following a certain line of action.—ED.]

ORCHIDS AND OTHER FLOWERS AT WESTMINSTER

DESPITE the unfavourable weather of the previous few days there was a very fine display of autumn flowers at the fortnightly meeting of the Royal Horticultural Society, held at Vincent Square on October 20th and 21st last. The majority of the floral exhibits showed little or no damage by frost or wet. The roses were in fine condition and reflected great credit on all the firms who were showing.

The orchids, which were the special feature of the Show, again proved of considerable interest to all lovers of these aristocratic plants. Although no novelty was presented which was considered worthy of a first-class certificate, the general standard was well up to that seen in previous years, and four awards of merit were given.

The only gold medal was awarded to Messrs. J. and A. McBean, Cooksbridge, Sussex, for an extensive exhibit covering 240 sq. ft., and in which quality and style of arrangement were prominent features. But few orchids have obtained greater popularity than Cypripedium Maudiæ, a beautiful hybrid with light greenish-coloured flowers, and particularly adapted to amateurs' collections. This firm staged several well flowered examples.

The challenge cup offered by the orchid trade was won by Mr. H. T. Pitt, Stamford Hill, N., for the third time, and it has thus become his property. This amateur had several varieties of Cattleya Hardyana, a natural hybrid which has also been raised artificially, and in a form with albino sepals and petals. The other amateur who competed for the cup was Mr. J. J. Joicey, Witley, Surrey, who had an excellent group of modern hybrids, and for them received a silver-gilt Banksian medal. Sir Jeremiah Colman, Bt., Gatton Park, Surrey, also had an interesting group of Cattleya hybrids, mostly large specimens selected on account of the uncommon bluish and lilac tints of the flowers.

No fewer than five trade growers received silver-gilt Banksian medals for meritorious exhibits. Messrs. Sanders were particularly strong in the Burmese Vanda cœrulea, and in richly coloured varieties of Cattleya Fabia, which are always appreciated for autumn decoration. Messrs. Charlesworth and Co. filled the centre area of their group with fifty flowering plants of Dendrobium phalænopsis, imported from North Australia early last year, while on each side were examples of their recent novelties in odontonias, produced by crossing Miltonia vexillaria with various odontoglossums.

Messrs. Black and Flory had an exhibit in which yellow-flowering Cattleya hybrids predominated, and although progress in the making of a large flower of yellow colour is somewhat slow, there were many varieties which showed a marked improvement. At present, brightness of the yellow colour is generally associated with rather narrow segments. Messrs. Cowan and Co. specialise in cattleyas, and their several examples of Brasso-Lælio-Cattleya British Queen comprised some of the largest orchid flowers which have so far been produced. In Brasso-Cattleya Nora, of slightly smaller size, the flower is of a deeper tint of mauve.

Messrs. Stuart Low and Co. exhibited several rare species in their group, including a variety of Cattleya bicolor with a bluish lip, and the pretty Oncidium oblongatum citrinum. This firm had some excellent varieties of Lælio-Cattleya Profusion, which is now one of the most popular hybrids of recent origin.

In Messrs. Cypher and Sons' noteworthy exhibit of the popular cypripediums, a fine variety of Elatior stood out prominently, as also did Cypripedium Shogun, which originated in the Westonbirt collection. Mr. Harry Dixon staged a group containing several of the easily grown hybrids, and also some of the species which were popular in days gone by and are now again becoming so with the present generation of amateurs.

The condition of the rose exhibits was surprisingly good, considering that the season is so far advanced. Many of the blooms showed no sign whatever of any damage by wind or rain. Messrs. George Prince had a collection which was quite unblemished. Among them Lady Hillingdon, K. of K., Los Angeles, Lady Inchiquin, Frau Karl Druschki, Souvenir de C. Pernet, Lady Pirrie and Allan Chandler, a new perpetual-flowering semi-double pillar rose of vivid scarlet. Messrs. Chaplin Brothers staged some splendid roses. Perfect blooms of that lovely white single Innocence were shown, together with Henrietta, Mabel Morse, K. of K., W. F. Dreer, Emma Wright, Eric Holroyde and others. A most effective stand was that of Messrs. Dickson. The varieties chosen were few in number, but bold groups of those selected made the stand a blaze of colour. Shot Silk (with its fragrant shaded pink flowers) was the most prominent variety. Lovely blooms of K. of K., Betty Uprichard, W. F. Dreer, Scarlet Glory and Earl Haig were also included. Mr. J. Pemberton staged a varied collection, the best of which were Joanna Bridge, Golden Emblem, Isobel Ruth, I Zingari and Pax.

For about the first time this year exhibits of the beautiful and easily grown greenhouse bulbs, the nerines, were on show. A fine collection of new hybrids was shown by Messrs. Barr. Countess Bathurst was a beautiful blush-white variety with a rose centre; Flambeau, a fiery scarlet; Bodyguard, a crimson shot with purple—an attractive colour; Royal Prince, a handsome scarlet; and Peter Barr was a beautiful rose covered with a golden sheen. The truss of the latter variety was large and borne on a stiff stem of great length. Knight Templar, Firelight and Scintilla were also good varieties. An interesting group of N. Bowdeni was exhibited by the Duchess of Wellington (gardener, Mr. H. Beckenshaw). This species is one of the hardiest of the family, and the specimens shown on this stand were picked from an outside border at the base of a yew hedge, where the nerines bloom in great profusion. Nerines were also shown by Mr. W. H. Walters and a few by Mr. G. Reuthe. Mr. Walters is now in charge of Colesbourne Park Gardens, Cheltenham, the gardens of the late Mr. H. J. Elwes. Such varieties as Mrs. H. J. Elwes, the Hon. Miss Gibbs and Snowflake were shown by him.

Messrs. Sutton and Sons had an excellent exhibit of many members of the brassica family. The savoys and cabbages were particularly fine in size, and the outstanding varieties were Savoy Sutton's Dwarf Green Curled, Savoy Cabbage, Sutton's Selected Drumhead, Cabbage Sutton's Early Market. The Portugal cabbage, Couve Tronchuda, a most useful but seldom grown vegetable, was also seen on this stand. A good collection of vegetables grown without the addition of farmyard manure to the soil was shown by Viscount Elveden.

THE EXHIBIT OF ORCHIDS, STAGED BY MESSRS. CHARLESWORTH.

Mr. J. W. Forsyth staged an interesting exhibit of delphinium seedlings which were sown during October of last year. In spite of several degrees of frost during the second week of this month the blooms of these seedlings were uninjured.

Some good groups of chrysanthemums were also staged, and representative collections came from Messrs. Keith Luxford, Messrs. Godfrey and Son and Mr. W. Yandell. Messrs. Godfrey had some fine blooms of the varieties Godfrey Gem, Gold Cup, Monica and Jean Pattison. The two well known firms of Messrs. Allwood Brothers and C. Engelmann had large collections of newest carnation varieties. The other groups in the hall were chiefly of herbaceous plants, while a few individual exhibits, such as the gesnerias shown by Mrs. Howard Palmer, added greatly to the variety and interest of the show. Messrs. F. G. Wood made a sombre little pinetum of dwarf conifers: Picea

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occidentalis pygmea, that looks like a fantastic green rock; Pinus Remontii, a forest tree in miniature; Cupressus Fletcheri nana, in tarnished silver; and Thuya "Rheingold," in dull gold. Against this background the pale, late blooming variety, Aitchisonii, of Crocus speciosus shone out, delicately alive and beautiful. Another fine autumn crocus, C. medius, was shown by Messrs. Reuthe; this easily grown rarity from the Riviera is distinct from nearly all other crocuses in its peculiar tone of purple, and from all in the star of deeper colour at the base of the cup. Every autumn, one wonders why the wild crocuses are so seldom seen in gardens.

Among other exhibits were the following:

Fruit.—Messrs. Buckwell and Lockyer and Co., J. J. Kettle, Laxton Brothers and G. Trinder.

Hardy Plants.—Messrs. Bakers, Godfrey and Sons, Isaac House, K. and E. Hopkins, H. J. Jones, B. Ladhams, Reamsbottom and Co., and W. Wells, jun.

Shrubs.—Messrs. J. Waterer Sons and Crisp, John Klinkert, and G. Reuthe.

Violets.—Messrs. J. J. Kettle and B. Pinney.

ORCHIDS.

AWARDS OF MERIT

CATTLEYA MIMOSA VAR. GRANDIFLORA (Venus × triumphans).—One of the finest hybrids derived from Cattleya bicolor. The large flower had the sepals and petals of bright golden yellow colour, slightly tinged with bronze, the flatly displayed labellum of plum-purple colour, and with its side lobes enveloping the whitish colour. A noteworthy feature is the thick texture of the whole flower, while the broad petals, with their prettily crisped margin, are developed to an extent seldom seen in this section. Shown by Messrs. Cowan and Co., Southgate, N.

VUYLSTEKEARA EDNA, STAMPERLAND VARIETY, obtained by crossing Miltonioda Harwoodii with Odontioda Charlesworthii, and thus combining the three genera—miltonia, odontoglossum and cochlioda. The elongated spike bore nineteen flowers of medium size, reddish scarlet in colour and of a much brighter nature than previously seen. Shown by Mr. Robert Paterson, Cathcart, Glasgow.

LÆLIO-CATTLEYA PROFUSION VAR. MEGANTIC.—Probably the largest and finest form of this popular hybrid. The plant bore a single flower having all its segments of model formation, well above the average size, and of bright rosy-mauve colour, the labellum ruby-crimson with a narrow, lighter tinted margin. Shown by Messrs. J. and A. McBean, Cooksbridge, Sussex.

CATTLEYA LADY VEITCH.—An exceptional variety of this hybrid between C. Lueddemmaniana and C. Warneri, of which albino forms were used, the resulting flower being pure white, except for some yellow in the tube of the labellum. The petals are larger and broader than usually seen in this hybrid. Shown by Mr. H. T. Pitt, Stamford Hill.

NEW AND RARE PLANTS.

AWARDS OF MERIT.

CHRYSANTHEMUM JAMES BAXTER.—Shown by Mr. W. Baxter, The Gardens, Lockerby Hall, Romsey. Described under "New Chrysanthemums."

CHRYSANTHEMUM MAYFORD YELLOW.—Shown by Mr. H. Shoesmith, Woking. Described under "New Chrysanthemums."

COLLETIA SPINOSA VAR. ROSEA.—This representative of the Rhamnaceæ only differs from the type which received an award in 1904 in the possession of rose-coloured flowers which give the varietal name. The spines are characteristic. The sprays shown were wreathed in the small blossoms, and the shrub should prove a valuable one for decorative effects. Shown by Messrs. R. Veitch, Exeter.

ARBUTUS UNEDO RUBRA GRANDIFLORA.—Sprays of this fine varietal form of the strawberry tree showed off to advantage the deep pink flowers which stand out conspicuously against the dark background of foliage. This would appear to be a fine ornamental and graceful tree when well grown, with its clusters of flowers and fruits. Shown by Messrs. Gill and Son, Falmouth.

BERBERIS JAMIESIANA.—This is a fine species and appears to be closely allied to B. polyantha. With its long arching reddish brown stems and its clusters of dull red berries, combined with its golden brown tinted foliage, it is an exceedingly attractive species. Shown by the Director, R.H.S Gardens, Wisley.

MYRTUS UGNI.—This is a Chilian representative of the myrtle family, with evergreen, rather leathery, oval leaves resembling those of the ordinary myrtle, but with smaller flowers. The fruits are of a glossy reddish black in colour and are borne on single dangling stalks arising in a cluster. Shown by Mr. G. Reuthe, Keston.

BOMAREA WHITTONII AND BOMAREA MATTHEWSII.—These are two interesting hybrids raised in the Glasgow Botanic Gardens, and are the result of crossing B. edulis and B. Carderi in the first case and reversing the parents to obtain the second hybrid. Both show a considerable improvement on either parent and should prove valuable additions to our list of cool greenhouse plants. The leaves of B. Whittonii are about 3ins. long and of a light green colour, with the characteristic twist. The long bell-shaped flowers are of a delicate rose colour on the outside and spotted brown on a cream ground inside. They are borne on long pendulous stalks. B. Matthewsii has much larger and darker leaves, almost 6–7ins. long, and the flowers are also of a darker shade of dull pink and are carried on much longer stalks. Both are handsome forms and are sure to find a place in the cool greenhouse, once a supply is available. Shown by Mr. G. Banks for the Director of Parks, Glasgow.

VIBURNUM THEIFERUM.—This is a handsome species from western China and was introduced by Wilson in 1901. It bears medium-sized tapering leaves with widely toothed edges, and from the sprays shown, fruits exceedingly well. These are borne in rounded clusters and hang gracefully from the branches. They are bright red in colour and rounded to egg-shaped. Shown by Mr. G. Reuthe Keston.

ASTER QUEEN MARY.—A fine variety of the Novi Belgii type with fairly large flowers of about 2ins. across. The ray florets are upstanding and incurve over the yellow cushion-headed centre. Shown by the Hon. Vicary Gibbs, Aldenham (Mr. E. Beckett).

NEW CHRYSANTHEMUMS.

On October 19th last the Floral Committee of the National Chrysanthemum Society made the following awards to new varieties:

JAMES BAXTER.—A very desirable exhibition Japanese variety. The very shapely flowers have broad drooping florets of deep old rose colour flushed with crimson in the centre. First-class certificate to Mr. W. Baxter.

MAYFORD YELLOW.—A valuable market variety of medium size and made up of stiff yellow florets. First-class certificate to Mr. H. Shoesmith, jun.

GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants.

SEAKALE.

IF very early supplies of this vegetable are required, a quantity of roots, which are full of food material, should be lifted from the beds now. Good strong crowns should be selected, and the large thongs—or side roots—taken off. These thongs or whips may be notched into lines in some part of the reserve garden, or set in boxes of soil and covered over to the depth of 3ins. or 4ins. with fine ashes. The bottom portion of each small rootlet should be cut in a slanting direction, if there is likely to be difficulty in recognising the top ends. Thus vegetative propagation as a method of increasing the stock may be so arranged as to go on simultaneously with forcing preparations.

The large roots should be set a few inches distant from each other among fine soil or leaf-mould in the forcing house, then after a good watering they should be kept in darkness. Blanched stems should be ready for cutting in from four to five weeks time from date of placing roots in heat.—DAVID ARMSTRONG.

THE VALUE OF ANNUALS FOR EARLY FLOWERING.

ANNUALS now form a very important feature of the garden, whether the latter be large, medium or just a tiny plot. Probably they have been grown more generally in the small, than in the large garden in past years, but they are general favourites now and everybody wishes to have their flowers available for as long a period as possible. With this object in view seeds should be sown in the autumn in pots, boxes and cold frames. Statice sinuata, usually sown in the spring, may be sown in November, where there is a glass structure available, the seeds soon germinate and the resultant seedlings should be left undisturbed till February then they should be transplanted in boxes or frames or singly in small pots. The time to plant in the flowering quarters is mid-April. Almost at once, if the work is well done and the soil in good condition, the plants will begin to grow and early flowers will soon be available. To prolong the season to October spring sowings should be made. Calendula officinalis Orange King may be grown in a similar way; the seeds will germinate in any month under glass. Spiral candytuft is also easily grown and flowered in pots or boxes; the seedlings should be thinned out, not transplanted. Annual larkspurs are charming and may be had in bloom two months earlier than usual by sowing seeds in small pots in January and transplanting; follow these by sowing Godetia Lady Albemarle, dwarf and very free, in February. These with Ten-week stock, mixed, will afford a wonderfully bright display of flowers in a warm border many weeks before blossoms can be had from ordinary spring sowings.

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THE DISTURBANCE OF PLANTS

SEVERAL years ago Sir Isaac Bayley Balfour said that theoretically the best way to grow a rhododendron was to sow one seed in the exact place where you hoped to see the plant reach maturity. By that he meant that the less you disturbed the root action of plants the better. Like in everything else, there are certain exceptions, but we move our trees and shrubs too much; of that I am certain. How often do you hear it said, "Oh, plant it there; it can always be moved afterwards." That is the wrong way to look at the subject. The movement of trees and shrubs should only be undertaken after considerable thought. I was just as careless as anybody else and would move a plant on the slightest provocation; but now I have come to the conclusion that many deaths take place in the garden owing to disturbance of the roots.

It is, perhaps, natural that we are inclined to ignore what we cannot see, and that few of us realise what a check is given to a plant by moving it owing to the disturbance of the roots and the impossibility of avoiding breaking or bruising something in the elaborate system that a plant evolves under the ground. The remedy is to give more attention to the first planting and to realise that a plant cannot be dug up without injury. This is more obvious in the case of plants which make long tap roots like the hickory, the magnolia and the oak. On the other hand, many people, myself included, have said that a shallow rooter like the rhododendron, with masses of surface fibrous roots, is not harmed by transplanting. We are wrong. They are checked, although to a lesser degree than a plant with a tap root. The selection of a poor position —and ultimate transplanting—is often caused by ignorance, particularly in the case of new introductions, and collectors and cataloguers would confer a boon on all gardeners if they would give more details about the soil in which a plant grows for the science of intimate conditions below ground is comparatively new.

From my own experience, I know the great advantage that a plant in an original position has against one that has been transplanted. The plant may not die; it usually does not, but it stands still for a year or more, while time does not wait for the gardener. So the transplanting often costs him one, two or three years of extra waiting.

I would go even further, and say that the ideal method of raising a tree or shrub from seed was one seed one pot—provided, of course, that it was not a community plant where close contact with their kin is a necessity for their welfare; but the ordinary run of trees and shrubs which lead a solitary existence as specimens, or one of a group as opposed to a tangle, would be the better for the treatment of one seed one pot, and one large enough at that to avoid re-potting at an early stage. However careful and however neat-fingered you may be, there is bound to be a certain amount of damage to the young roots, with a consequent derangement of the whole intricate system of a plant's interior structure. One seed one pot saves pricking off and often allows you to grow on a plant in its original pot until it is large enough to plant out, with, of course, a certain amount of new soil added from time to time.

The objection to this system of seed-sowing is obvious—lack of space. Everyone hates to waste any seeds which have been given to them or which they may have bought; but an over-abundance of seedlings is almost more of a curse than too few. You do not know what to do with them and try to grow them all, with consequent lack of attention, instead of burning what you cannot use or give away. This destruction is horrible, but it is sometimes necessary.

Whether you carry your raising of plants to such an extreme or not, it should be realised that all planting should be done as much as possible in the position that the plant will finally occupy. Care should be taken over the selection and preparation of the site, so that when it is in position its roots can get a good grip of the soil and be free from needless disturbance. Changing a tree or shrub from place to place will never do it any good and will often do it harm.

E. H. M. C.

FLOWERS IN LONDON PARKS

EVERY year those in charge of the London parks appear to better the floral displays at all times of the year. This autumn the dahlias have been particularly fine, and have, indeed, become one of the sights of London. Even at the end of October the beds were gay with flowers. Most of the charms were over, but the pom-pons and the cactus-flowered had stood up remarkably well against the weather. The chrysanthemums have also been very fine this year. Five parks have a special show of them: Battersea Park, Waterlow Park, Finsbury Park, Victoria Park and Southwark Park. They are well worth visiting before the hard weather sets in.

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A GOLDEN BORDER

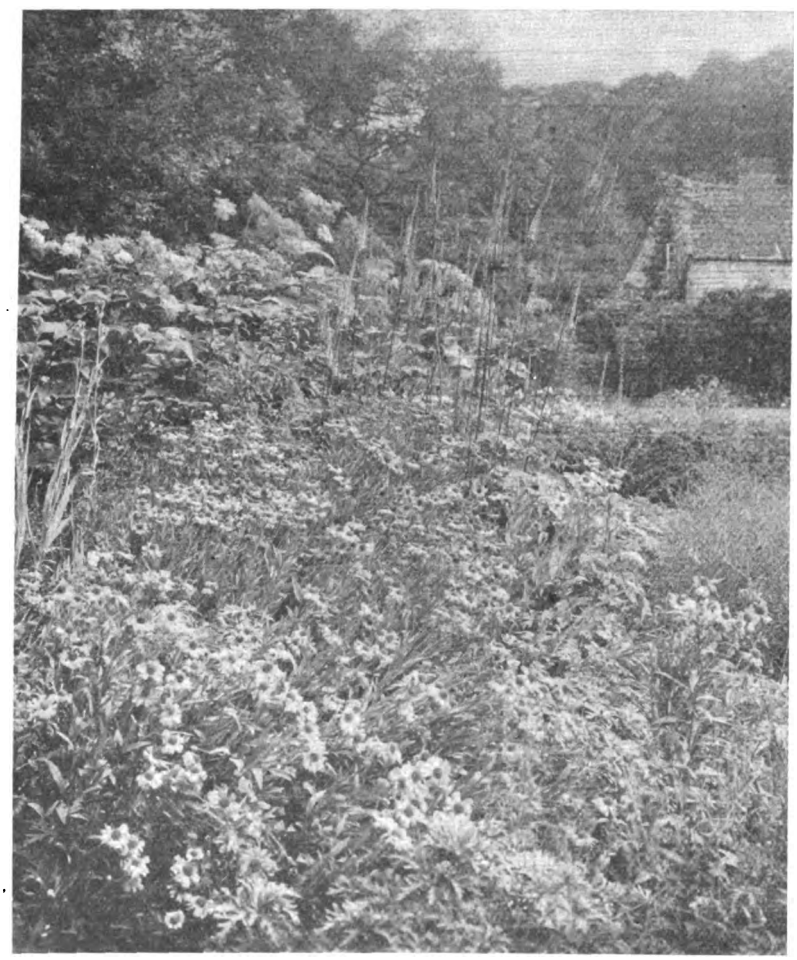
THERE are three different ways of making a "colour" border; in the first, the flowers are arranged to tone from light at one end to dark at the other; in the second the shading is graduated from pale in front to deep at the back, and in the third the various shades are mingled throughout. The last plan is certainly the easiest to carry out and when the key-colour is yellow, it may be safely followed; for all yellows —I think I may say without exception—harmonise with each other, which is very much more than can be said for reds, pinks or blues, especially the latter. Suppose then that the third plan has been decided on. The border may be edged with such spring-flowering plants as Alyssum saxatile alternated with Cheiranthus Allionii or C. alpinus, although the latter, perhaps, is a little too dwarf to combine quite satisfactorily with the alyssum. After flowering, both alyssum and cheiranthus can be cut back and dwarf nasturtiums, mixed cream, yellow and orange, sown between them for succession, or the plants may be lifted and replaced by bedding violas, such as Royal Sovereign, pale yellow; Moseley Perfection, deep yellow; Klondyke, bright yellow; and Tangerine Harrison, orange. But as a matter of fact it is really best to discard the old plants of alyssum and wallflowers replacing them with young ones each autumn, as neither can be absolutely depended upon for a second year's flowering and both are easily raised from seed.

Immediately behind the edging plants may come a broad band of May-flowering tulips, ranging through every shade of yellow, from the pale Leghorn Bonnet to rich-coloured Bouton d'Or. If, however, the border is a long one and the cost of enough tulips to make a satisfactory display is thought too great, quite a brave show will result if such wallflowers as Golden Yellow and Primrose Dame are combined with such a tulip as Mrs. Moon and Inglescombe Yellow, or the paler Moonlight. In due course these may be followed by intermediate antirrhinums, of which Golden Gem and Sutton's Orange King are effective varieties, if the latter is not thought to approach scarlet too nearly to be strictly admissible in a golden border. The buff shades should be avoided, and also the pale and rather sour yellow which seems prevalent among the snapdragons sold by "small" nurserymen. Among the antirrhinums may be placed bold groups of Gladiolus primulinus, in which several good tones of yellow are now obtainable.

We now come to the main part of the border and for the first row of this, plants from 2ft. 6ins. to 3ft. 6ins. in height will be wanted, although the expression "row" must not be taken too literally, as groups of taller things should be brought forward from the rear at intervals to obviate anything approaching a dead straight line. Suitable plants for this, the third, section of the border, are Rudbeckia speciosa, Inula grandiflora, Helenium pumilum and H. Bigelovii aurantiacum, Anthemis tinctoria, Digitalis ambigua, Doronicum plantagineum excelsum, Coreopsis grandiflora, Asphodeline lutea, Helianthus multiflorus Golden Ball, and the yellow lupin that is one of the hybrids between L. arboreus and L. polyphyllus. Clumps of Lilium croceum may be introduced here and there, as well as such shrubs as the golden-foliaged Cassinia fulvida and our native Potentilla fruticosa, a pretty yellow-flowered bush, of which a charming picture was given in THE GARDEN of May 2nd. If the border is sufficiently wide, Berberis stenophylla and B. Darwinii may be added to these.

There are many golden-blossomed plants from 4ft. to 6ft. high, from which a choice can be made for the back portion of the border. Among the showiest are the Rudbeckias Golden Glow and Autumn Glory, Helianthus Miss Mellish, Helenium Riverton Beauty, Heliopsis B. Ladhams and H. Excelsior, Verbascum Chaixi, Centaurea macrocephala and C. ruthenica, Solidago (the variety Golden Wings is, perhaps, the least coarse), and Senecio tanguticus. Lilium tigrinum in groups of six or eight bulbs will add much to the effect, as will the tall spires of yellow hollyhocks, but unfortunately these cannot be depended upon to come true from seed. However, it is worth while to try the experiment of putting in a few plants grown from seed saved from yellow flowers. Finally, the border may be backed with poles—or a treillage—on which are trained Clematis orientalis, with its quaint, golden flowers, like tiny Chinese lanterns, and yellow roses. Of the latter such old favourites as Jersey Beauty, Gardenia, Goldfinch and Albéric Barbier will be suitable, but a true yellow climbing rose sufficiently hardy to be grown outdoors is yet to be found.

If annuals other than the edging nasturtiums are permitted—and they are very useful to fill up those blank spaces which will occur in the best regulated borders—double calendula, annual chrysanthemums, coreopsis, sunflowers (both the tall varieties—yellow primrose and so-called red—and the dwarf ones) annual lupins and Dimorphotheca aurantiaca may be recommended.



HELENIUMS IN THE GOLDEN BORDER.

A slight variation on the border scheme suggested above may be carried out by raising it slightly and edging it with rockery stones, planting behind and among these Helianthemums in shades of yellow and orange, Geum Lady Stratheden, Potentilla Mont d'Or and P. Yellow Queen, and Linum flavum, to which may be added Meconopsis cambrica (which will seed itself freely), Corydalis lutea and Viola cornuta lutea. These plants will form a permanent edging, of course.

PLANTS FOR A GOLDEN BORDER WITH TIME OF FLOWERING AND HEIGHT.

Alyssum saxatile	May-June	8ins.
Antirrhinums (intermediate)	All summer	15ins.
Anthemis tinctoria	All summer	2-2½ft.
Asphodeline lutea	June-July	3ft.

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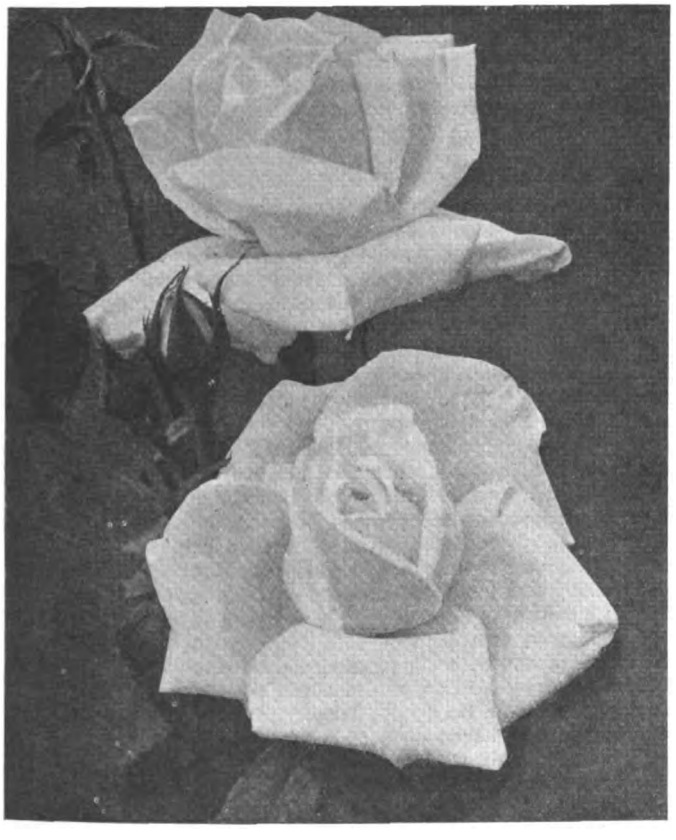
Coreopsis grandiflora	July-September	3ft.
Centaurea macrocephala	July-September	5ft.
Corydalis lutea	All summer	6ins.
Centaurea ruthenica	July-September	5ft.
Cassinia fulvida	July-August	2½-3ft.
Cheiranthus Allionii	May-June	1ft.
„ alpinus	May-June	6ins.
Doronicum plantagineum excelsum	April-May	3-4ft.
Digitalis ambigua	June-July	3ft.
Geum Lady Stratheden	July-August	2ft.
Gladiolus primulinus	July-August	2ft.
Helianthemums	June-July	1ft.
Helenium pumilum	July-September	3ft.
„ Bigelovii aurantiacum	July-September	3ft.
„ Riverton Beauty	July-September	5ft.
Heliopsis B. Ladhams	August-September	5ft.
„ Excelsior	August-September	5ft.
Helianthus Miss Mellish	August-September	6ft.
Helianthus multiflorus Golden Ball	September-October	4ft.
Inula grandiflora	June-July	2ft.
Lilium croceum	July	4ft.
„ tigrinum	August	5ft.
Linum flavum	June-July	1ft.
Lupin hybrids	All summer	3½ft.
Meconopsis cambrica	June-August	1ft.
Potentilla fruticosa (shrubby)	June-August	3ft.
„ (hybrids)	June-August	1ft.
Rudbeckia Golden Glow	August	6ft.
„ Autumn Glory	August-October	6ft.
„ speciosa	July-September	2ft.
Senecio tanguticus	August-September	5ft.
„ Clivorum	July-August	4ft.
Solidago Golden Wings	August-September	6ft.
Verbascum Chaixi	July-September	6ft.
Viola cornuta	All summer	6ins.

R. E. HEAD.

SOME OF THE NEWER HYBRID TEAS



THE FRAGRANT MARCIA STANHOPE.

INDEPENDENCE DAY, ONE OF THE BEST OF BEDDING ROSES.

THE hybrid teas come apace. Looking through the National Rose Society's "Select List of Roses" for 1925, I find that over 100 varieties, which have been introduced between the years 1916 and 1922 inclusive, are considered worthy of recommendation for one reason or another. Bearing in mind that many which perhaps appeared in the list five years ago have been eliminated and many more have never found a place, we can realise what a tremendous output of new hybrid teas has been made during the last decade. We obviously cannot grow them all, yet to choose among so many would seem bewildering.

Beauty of form and the lasting quality of the individual bloom, the vigour and hardiness of the plant itself, may not be greater in the rose of 1925 than it was in that of the pre-war roses. But even so short a time ago as 1915 there was little in our rose gardens that could compare for sheer brilliancy of effect with a bed of such later varieties as K. of K., Hortulanus Budde, Red Letter Day, among crimsons; Golden Emblem, Mabel Morse and Christine, among the yellows; while such colours as the almost pure orange of Independence Day, Emma Wright and Severine; the vivid cerise orange and flame tints of Henrietta, Padre and Betty Uprichard and others, were only just finding their way into our gardens, through the introduction, in 1913, of the still almost universally grown Mme. Edouard Herriot.

Even these bright tints will pale before the still more vivid hues of Elvira Aramayo, Eva Ekins and Mr. McGredy's gold medal rose, Margaret McGredy. Possibly we have gone far enough in the direction of brilliancy of colour, which may degenerate into hardness and gaudiness, and that it will be well to give greater attention to beauty of form and outline, to fragrance and to hardiness and immunity from disease.

Los Angeles (Howard and Smith, 1916).—If I were only allowed to plant one hybrid tea introduced during the last ten years, I should unhesitatingly choose this. It grows into a tall, upright bush and produces large blooms of the most delightful fresh apricot, with a warm glow of coral rose in the centre; the petals are of excellent substance, and if only it

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would always hold up its head (it sometimes will) there would be no fault to be found with this variety. With us it has grown and flowered well on tall standards budded on the rugosa stock, as well as when grown in bush form on the briar.

W. F. Dreer (Howard and Smith, 1920), is a sport from Los Angeles. It is not so tall a grower and is apt to have rather a sprawling habit. The beautiful flowers of sunset tints, yellow, peach and apricot, are produced freely on smooth stems and though the branches are less upright than those of Los Angeles, the flower stalks themselves are firmer.

Independence Day (Bees, 1919).—All through this summer our batch of Independence Day has flowered well and freely. The golden orange flowers, though decidedly thin, are always well shaped and delightful in colour and pretty in all stages of development; they are held quite erect and stand even heavy rain without discolouring. The foliage is bright, polished green. This is really a Pernet variety, but the Pernet roses are now so much inter-crossed with the hybrid teas that I am writing without making distinction between the two classes. Independence day is certainly one of the best roses we have for small or medium sized beds. It is not tall enough for the big beds, such as we see in Kew Gardens.

Emma Wright (S. McGredy and Son, 1917), is a beautiful little rose of a much deeper orange than Independence Day, also with polished foliage. It is not, however, nearly so free-flowering. It is a great favourite for table decorations, the colour being good and pure and lighting up well. It is little more than semi-double.

Mrs. C. V. Haworth (A. Dickson and Sons, 1919), is another semi-double variety with many tints of yellow, peach, salmon and pale rose on its petals. At the latter end of June it was one of the most effective and floriferous of the roses in the Trial Garden at Wisley. Some growers complain that it has a way of dying out, but we have not had this experience in our garden.

Mrs. Dunlop Best (Elisha Hicks, 1916), is one of the hardiest and most vigorous of the newer hybrid teas. It has delightful and rather unusual foliage, dark green with a little kink at the edges of the leaves, which almost remind one of holly leaves without the prickles. The flowers this year have often been of a deep orange with a touch of reddish bronze. Other years I have not noticed them as being quite so good in this matter of colour, and should have described them as deep buff. This is a rose that can be recommended for general garden cultivation.

Ruth (Pemberton, 1921) is an appropriately named rose. Its delightful golden orange blooms are flushed with apricot and rose, their colouring as well as their name suggests a field of ripe corn at sunset. If only the bloom had an efficient stalk to show off its beauty, this would be an excellent rose for beds, but unfortunately it far too frequently hangs its lovely head.

Among the cerise coloured roses there are two of outstanding merit, both brought out in the same year by the same firm, Betty Uprichard and Lady Inchiquin.

Betty Uprichard (A. Dickson and Son, 1921), is a rose of wonderful colouring, bright deep cerise on the outside of the petal and salmon pink on the inside, though the flowers are thin they are freely produced on straight stems and the plants are hardy and of good habit. This is quite one of the best and most popular of the newer hybrid teas.

Lady Inchiquin (A. Dickson and Son, 1921), which is classed by the N.R.S. as an exhibition variety, has full, well shaped blooms of pure cerise pink. The plants are only fairly vigorous and only moderately free; they are given to mildew, but it is worth growing for the sake of its colour and form.

Shot Silk (1924), is another variety with good form and lovely tints, difficult to describe; soft cerise suffused with salmon and gold gives only a suggestion of the colour. The shape, too, of the bloom is quite good and it is held erect on a stout, if rather short stem, and moreover, has a delicious scent.

The two best roses of the Mme. Edouard Herriot colour are *Henrietta* (Merryweather, 1917), and *Padre* (B. R. Cant, 1920). Neither are so free flowering as the earlier rose, but they are of a softer terra cotta and are not so given to stem mildew. Of the two I prefer Henrietta.

Mme. Butterfly (The E. G. Hill Co., 1920).—A sport from Ophelia, is so well known that it needs no description. For the open garden it is, in my experience, a better doer than Ophelia, though, like that variety, and Ophelia's pretty creamy white sport, *Westfield Star* (Morse, 1920), it needs constant attention in disbudding if we want the almost perfect shaped flowers which these three varieties are capable of making. They are all very fragrant, and all have smooth, firm flower stalks.

Marcia Stanhope (C. Lilley, 1922), is said to be a seedling from Frau Karl Druschki. The white and delightfully fragrant flowers do somewhat resemble the older variety, but they are not so freely produced nor so perfect in shape.

The thought of fragrance brings me to consider the newer red roses, which, unfortunately, too often lack this quality.

The brilliant *K. of K.* (A. Dickson and Son, 1917), the deep plum red *Covent Garden* (B. R. Cant, 1919), and the fine crimson *Lord Charlemont* (McGredy, 1922), are all worth a place in the garden, but all are sadly wanting in fragrance.

For this quality we must go to *Etoile de Hollande* (Verschuren, 1919), a dark crimson, with a very rich scent, and *William Baver* (Chaplin Bros.), also a dark red fragrant rose; it is not quite so well shaped nor so free flowering as Etoile de Hollande.

Hortulanus Budde, a bright scarlet crimson with a yellow base, which gives a wonderfully brilliant effect to the somewhat thin, but very freely produced flowers, and *Miss C. E. van Rossem* (van Rossem, 1920), with small, well-shaped, dark crimson and moderately fragrant blooms, are good bedding roses.

Two new fragrant crimson roses have been shown this year; these are *George H. Mackereth* (A. Dickson and Sons, 1924), and *Arthur Cook* (S. McGredy and Son, 1924). Both have the real old rose scent and are of a dusky crimson hue.

I must not finish these notes without mentioning three good pink roses.

Charles E. Shea (Elisha J. Hicks, 1916), has well shaped rich pink flowers with a suggestion of salmon.

Mrs. Henry Bowles (Chaplin Bros., 1921), is a strong grower and produces abundantly its large, full rose-coloured blooms throughout the season.

Columbia (The E. C. Hill Co., 1921), is also very free. Its flowers are a true pink, are full and fragrant, and are held erect.

WHITE LADY.

FLOWERING SHRUBS in the HERBACEOUS BORDER

BY GERTRUDE JEKYLL.

THE term "herbaceous border" is generally used for any border where flowering plants, mostly hardy perennials, are grown in combination. It should be accepted and used with a good deal of elasticity, for a certain number of the border's occupants, such as pinks and the broad-leaved saxifrages, and grand things such as yuccas and phormium, are by no means herbaceous. Also it may include a number of summer bedding plants and a good many annuals which are also not at all herbaceous. A further demand for latitude presents itself when we come to certain shrubs which may well be made welcome in the flower borders. The occasional inclusion of shrubs towards the back gives a pleasant impression of solidity and permanence, especially if the border is of large proportion, and they take their places finely in good colour arrangements.

Thus, if a border begins at one end with plants of cool and tender colouring—blue and white and palest yellow—there will be the place for a bush of Ceanothus Gloire de Versailles. Pruned hard back every winter it makes a multitude of flowering shoots that are beautiful in July and August and are delightful with white dahlias and hollyhocks, tall white snapdragons and the white everlasting pea that covers the half cut down delphiniums that were in beauty three weeks earlier. Another delightful shrub in this region is Hydrangea arborescens grandiflora, blooming at the same time at the point of every twig. It is kept to under 5ft. and comes a little more forward in the border. The colour now passes on to yellow, and at the back are some bushes of golden privet, trimmed to the height and size desired. This constant pruning prevents flowering, so that the unpleasant smell of the bloom

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is avoided. All through the summer this group of golden foliage shows as nearly the brightest yellow in the border. It is accompanied by the cream-coloured blossom of Artemisia lactiflora, which is grouped with the pale yellow annual sunflower. Following this is yet another bright yellow-leaved shrub, the golden elder, also closely cut back in winter, when it throws up a showy head of large yellow leaves. The tall Rudbeckia Golden Glow is planted close to its foot and is brought up through it, making it look as if the yellow blossom belonged to the golden bush.

Where there is a gorgeous mass of red colouring in the middle region of the border's length there are some bushes of Prunus Pissardii forming an harmonious grouping with claret-coloured and richly deep red and blood red hollyhocks and a tall old dahlia of something even deeper than claret colour. This deep coloured filling to a mass of red dahlias and cannas is continued forward by the red tinted Ricinus Gibsoni, and more forward still by iresine and a red-leaved amaranthhus. Then come the yuccas, the tall Y. gloriosa and the dwarfer-growing Y. filamentosa. Here the colouring is again white with palest yellow, and here is a group of Hydrangea paniculata. The ordinary pink Hydrangea hortensis is freely used for dropping in to any empty spaces such as occur from the removal of a group of the biennial clary towards the end of the border. Here the colouring is of pink and purple flowers with grey foliage, so that excellent small shrub Senecio Greyii finds a place, with bushes of the silvery-leaved Hippophæ (sea buckthorn) at the back. This stiffening of a large flower border with shrubby growths is much to be advised. A number of other shrubs could be used in the same way, such as the neat-looking Veronica Traversii at the back and smaller veronicas towards the front. The pretty blue Plumbago capensis is a delightful thing for dropping in in the region of blue and white flowers.

HYDRANGEAS IN THE WILD GARDEN

BY H. AVRAY TIPPING.

NEVER before I recently made this garden in Monmouthshire had I had one where the hydrangea family flourished. Thus, I am only beginning to be on intimate terms with it and to note its curious eccentricities. You buy a variety, with a bloom said to be of a certain colour, but you haven't the least idea what trick it is really going to play you. It may prove a very chameleon—not, indeed, assimilating to its environment, but using the soil it happens to be set into as a pigment to deck itself out in most varying hues. Of course, I knew and had seen how a pink hydrangea was often blue in Devonshire; and among Mr. Jones's enormous numbers of varieties, as he stages them at Chelsea, a great many colours appear. But the capacity of a single variety, nay of a single plant, to form half a rainbow, has come upon me with a little surprise. On the limestone of Mounton House, a dozen miles from here, hydrangeas out of doors did no more than eke out an existence, and the only variety I could be pretty sure of getting to bloom was Souvenir de Mme. Cherau. Whereas, the old hortensis is a pale and rather characterless pink, Mme. Cherau at Mounton was of a full, rich, strong rose or cerise colour. It also is the one which is most dependable for out-door blooming here, where, right up in the hills, the season is often not warm enough to bring plants that have been cut back by one winter into blooming stage before the next one sets in. I therefore have lots of it about, and this one variety might be a legion from the colour variations it presents. There is a three year old plant on the terrace that has a dozen bloom heads, none of them quite similar. One is just exactly the cerise that I knew of old, while others are more or less violet or blue, but never fully the latter. In the wood it is never cerise, but often blue, and in some cases the blue, as a blue, is just as full, rich and strong as the cerise. The two best plants were already two year olds when I planted them three years ago, and the illustration shows what sizable and floriferous plants they now are. But, of course, the effect they produce can in no way be realised in monochrome. The blue of them really quite startled me, when, after some months absence, I came down here and caught sight of them at the end of July, six weeks before the photograph was taken. With the rich blue, there is here and there a suffusion of deep purple. The effect is somewhat metallic, rather like the blue of tempered steel, but with added intensity and the charm of variety that nature knows so well how to give. There has been no dressing given for this purpose. It is entirely the effect of the natural soil in that quarter of the grounds. The ordinary hortensis, close by, is only more or less pale blue, and, as I have described its pink, characterless. I strongly advise those whose soil favours the blue of hydrangeas to plant Mme. Cherau freely. And that is very easily effected, for few shrubs give quicker results than hydrangeas. By cultivating some in pots we have a double-flowering season. We like a few in the spring, but as August and September are the chief residential months here, we like plenty for the house at the same period as they bloom outside. Thus, of last year's cuttings, a batch was kept back and has only just come into flower. All tend towards a blue colour from our ordinary potting soil, but are much lighter and more suffused with violet than the old plants in the wood. The plants are about 2ft. high, the bloom heads measure 2ft. round, and there are leaves 9ins. long and 6ins. across, thick in substance, deep green in colour. You imagine them with prodigious roots, sucking up their substance from half a bushel of soil. But no, they have just remained in their tiny 4in. pots, so that they give you the idea of the noble Chinese ladies of old whose feet were never allowed to grow beyond a five year old's size. The little pots are so crammed with fibrous roots that there is practically no soil. Unlike a human being, the hydrangea seems able to

A FINE BUSH OF HYDRANGEA SOUVENIR DE MME. CHERAU IN THE WOODLAND.

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live on concentrated essences, without substance. Clay's fertiliser seems to be the vegetable "Bovril" that grows them great and maintains them in robust, almost athletic health.

But we also have some two year old plants in pots. For this late summer blooming these were cut down to near the ground in spring. They were set some in 7in. and some in 8in. pots and allowed either two or three shoots. They are now over a yard high and have the biggest leaves I have ever seen in hydrangeas, up to 10ins. long and 8ins. across. But the bloom head should surely satisfy the most ambitious Yankee, who could swell with pride as he called them the greatest in the world. Here we have one 3ft. 9ins. in circumference, 1ft. 2½ins. across the base, and 2ft. 1in. over the dome-like top. It is of the old hortensis variety and pale blue in colour, but its neighbour, a chip of the same block, with the same treatment and reaching the same proportions, is pink.

Many people no doubt have the same history to tell, and with more detail and experience than I possess. All I have said is merely the usual expression of surprise of the beginner in any study.

ON MICHAELMAS DAISIES—I

SOMEHOW I like the designation Michaelmas daisies far better than starworts, although this last name can boast the usage of British antiquity. Starwort or starflower seems more appropriate for yellow flowers, and, as far as I know, there are no yellow Michaelmas daisies or asters. The charming little pale yellow so-called Aster luteus is, properly speaking, a solidago. The only inappropriateness of the name would arise when flowers are admitted into the confraternity which do not flower about Michaelmas.

Modern lists admit the oldest garden section of all—the Amellus. Quite rightly, I think. They can point to the present "late" year of grace for their justification. I have some Amellus varieties in my garden which have not put forth a single bloom even to brighten our autumn oasis, St. Luke's little summer! Moreover, it is now a growing section. Roughly speaking, it remained a sort of Peter Pan for three hundred years. It had to wait for the touch of the twentieth century before bursting out into an unsuspected loveliness. Those who welcomed Benarabicus as an improvement on the typical Amellus can appreciate the change the creation of the modern varieties like Beauty of Ronsdorf, Wienholtzi and King George has brought about. I know little about their raisers. The names of many suggest a Continental origin; but if neither a Beckett nor a Ballard have given them to us, they are, nevertheless, heartily welcome in our gardens. We thank our good neighbours for working while we slept. We are, however, waking up. When I visited Mr. Ballard at the end of September he told me he was seriously thinking of taking them under his wing. For readers who do not know them, it should be said that the race is characterised by a low-growing habit (only 2ft. or less) and large flowers after the type of Ballard's new October Dawn. They are practically immune from mildew; they require little or no staking; and a few like grandis and Wells' Favourite are unselfishly sweet-scented. It is delightful to stand near them on a sunny day. As far as I know, no Novi Belgii or Novæ-Angliæ does this. If they have a slight scent they keep it to themselves. From the above everyone can judge for themselves if the type will suit them or not. It only remains for me to point out a few varieties which especially appeal to me and to others who have seen them here this autumn. With but one exception I grow them all, and so I am able to write from first-hand knowledge, without, I trust, putting my list forward as one issued with any air of infallibility. As I have found the names a little uncertain, I append the source from whence the different varieties came.

THE RICH DEEP BLUE FLOWERS OF ULTRAMARINE.

ADVANCE (Wells).—Large pale purple, early flowering, very free.

BEAUTE PARFAITE (Jones).—Large centre, one of the bluest toned.

BEAUTY OF RONSDORF (Jones).—Fine habit, large flowers of a pretty pinky mauve with a deep halo round the centre, very distinct.

CASSUBICUS (Jones).—Rich purple with dark centre.

GRANDIS (Perry).—Large pale mauve flowers, sweet scented, early, very fine variety.

OTTO RUDOLPH (Jones).—Tall, dark centre, deep colour.

PREZIOSA (Jones).—A redder shade of deep purple than Ultramarine, excellent habit.

RUBY (Bones).—A lovely shade of rose pink, very solid looking, tall, early flowering.

RUDOLPH GOETHE (Jones).—Similar to King George in colour, but a nicer habit, large.

ULTRAMARINE (Jones).—Tall, rich deep blue-purple, small flowers.

WELLS' FAVOURITE (Wells).—The best of the rose-pinks, sweet, tall and early.

WIENHOLTZI (Jones).—I have not grown this, unless the presence of a stump and root which never made any attempt to function makes a sufficient claim. All the same, whenever I have seen it the beautiful pink colouring of its flowers gave me a sense of supreme satisfaction. I fully share the cataloguer's enthusiasm.

With the Editor's permission I hope to devote the whole of my next article to longer or shorter notes on the great Novi Belgii section. It is, and probably always will be, the most important one as far as garden decoration is concerned. It reaches in height from Little Boy Blue and Esme to King of the Belgians; in colouring from Purple Emperor to Maid of Colwall and White Climax; and seasonally from Lavender and Phyllis to Belgian Queen and October Dawn.

What can you wish for more, my boys,
What can you wish for more.
(An old pantomine refrain.)

JOSEPH JACOB.

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EARLY FLOWERING CHERRIES

BY COLLINGWOOD INGRAM.

WITH the advent of summer, when our gardens are ablaze with colour, we are liable to forget the first few flowers that thrilled us in the spring. Yet there is none that annually gives us so much real pleasure as these, for do they not come after long, weary months of waiting—dark and ugly months, during which our senses have been hungering for their beauty? Prose and poetry alike have sung the praises of the more humble harbingers of spring—the snowdrop, primrose and daffodil—so it is not of these that I intend to write, but of some of the lesser known, though none the less beautiful, cherries of the Orient.

One of these, the Japanese Prunus subhirtella autumnalis, commences to flower in November and continues undaunted by the coldest weather, to open its semi-double, pinkish-white blossoms throughout the winter—not in ones and twos, but in masses! Even if an unusually severe snap damages the flowers, they are soon replaced by a fresh crop. Then, in late February or early March, comes the Chinese species, P. Conradinæ, with its white or pinkish flowers. The petals of the single form are inclined to be somewhat fugitive and for this reason the semi-double, pink variety is a more valuable plant. Although paler when open, in the bud stage these flowers are of a vivid *cerise* pink, and are then particularly ornamental. The rosebud cherries, both in the ordinary and weeping forms, are very beautiful little trees, but as they are comparatively well known, they need no praise from my pen. P. incisa, however, is still unaccountably scarce in Western gardens and is unknown to many. Yet this little wilding from the slopes of Fujiyama is an altogether delightful species. It is prodigal with its dainty flowers and even in a shady situation these will wreath the boughs from end to end. Its foliage, too, is attractive, the leaves being as small as those of a birch and so deeply incised that they appear to be ornamented with a prettily frilled margin. This cherry, the Mame Zakura, or pigmy cherry of the Japanese, is perfectly hardy in England and appears to have a very accommodating constitution, for it thrives with me equally well in either sunshine or shade. It is the species generally, though not invariably, used for dwarfing purposes by Japanese gardeners and is therefore apparently amenable to pot culture. As it fruits freely in this country and is quite easy to raise from seed, there can be no excuse for its rarity in this country.

Another early-flowering cherry is P. Yedoensis—sometimes called the Tokyo or Yoshino cherry. With the Japanese themselves it is immensely popular and no variety has been so extensively planted in the neighbourhood of Tokyo as this quick-growing and highly ornamental form.

THE YOSHINO CHERRY, PRUNUS YEDOENSIS.

As a rule quick-growing varieties are not, in their early stages, so floriferous as the more stunted forms, but P. Yedoensis appears to be an exception to this rule. The extraordinary profusion of flowers that may occur on even a young plant six or seven years old, is clearly shown in the accompanying illustration. The blossom is of a delicate shell pink and when massed on the tree is of exquisite beauty. It forms a striking tree with its horizontal branches garlanded with blossom.

NOTES OF THE WEEK

ANTIRRHINUMS — SOME POINTS ABOUT AUTUMN SOWING.

THEORETICALLY, autumn-sown antirrhinums should invariably be superior to those which are sown in spring; actually, a good many disappointments and partial or total failures are experienced, and it is no uncommon occurrence for spring-sown plants to outpace the autumn sown.

Recognition of a few simple facts will enable the raiser to avoid the various causes of failure, and it is well worth while to exercise proper care in handling one's seedlings, for the advantages that can be obtained by using autumn-sown antirrhinums really are very considerable. Common causes of failure are too much nursing, or "coddling," as the gardener terms it, too soft and rich a soil in the seed bed or the boxes used, overcrowding, and, finally, stunting the plants before bedding out in spring.

Where one's garden is of porous, gritty and well drained soil, and where the atmosphere is not heavily smoke laden, there need be no hesitation over sowing antirrhinum seed in the open any time between the end of September and mid-November, and it may be noted that small seedlings almost invariably pass through the winter more satisfactorily than larger plants with a considerable amount of soft stem and foliage. Early sowing is, consequently, by no means an assured method of avoiding failure.

Mother Earth is a far better bed for young seedlings than the most carefully prepared compost in a box, and outdoor sowing is to be strongly recommended except where stagnant damp or a polluted atmosphere discounts the advantages. Obviously, a seed-bed requires to be clean, both in regard to weed seeds and ground pests, but it should not be rich with manure.

Those who have to contend with the disadvantages of wet, heavy soil or smoky atmosphere will be driven to protect their seedlings, but they will be well advised to make up a well drained bed of porous soil in a cold frame in preference to sowing in boxes and wintering the seedlings in a heated greenhouse. Sow seeds very thinly, because it will be necessary to allow the young plants to remain undisturbed until the new year has spent several weeks, and anything approaching overcrowding in the seed-bed is distinctly detrimental to proper development.

The frame should seldom be closed entirely, and on clear fine days the lights may with advantage be drawn right back for a few hours. There is no advantage whatever in encouraging development of big top growth, the one necessity being to secure good roots and stiff, stocky stems.

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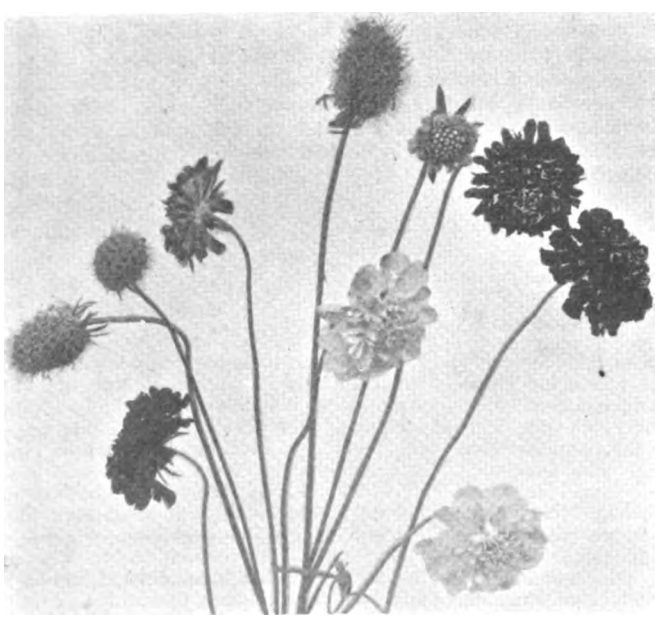
Among the tall growers which are particularly serviceable for the latter purpose and also for grouping in the herbaceous border The King is one of the brightest and best. Orange scarlet with a suffusion of yellow and white tube is its colour description. Yellow King is the best of the yellows

TIGRIDIAS IN A KENTISH GARDEN.

in the tall section, and Monarch is a grand crimson. Rose King provides a deep rich rosy pink on spikes a yard high.

The most serviceable of all antirrhinums are the intermediate, which range from 18ins. to 2ft. in height. Appleby Matthews is a very beautiful variety, orange terra-cotta with white tube, a plant of excellent habit and producing a large quantity of fine spikes. Charm is well named, for its rose pink is of a delightfully soft pure shade, and the plant is of superb habit. Empress is extremely good as a rich velvety crimson,



A CLUSTER OF PINCUSHION FLOWERS.

and Mrs. R. F. Felton is a scarlet self of first-class quality. For delicately tinted and suffused colours Sybil Eckford is enchanting, and Estelle is one of the apricot salmon class which is to be strongly recommended.—A. J. M.

TIGRIDIAS.

THOSE gardeners who love to grow the more uncommon plants will find in Tigridia Pavonia a plant well worthy of their attention. Although it has been in cultivation for many years, this gorgeous Mexican plant is rarely seen, although bulbs can be procured at a very reasonable price.

The plant is a member of irideæ, and, like most of the members of that order, the flowers are of a fugitive nature. The tigridia has leaves up to 18ins. in length and sends up its flower spathe to 2ft. A single flower opens on the spathe every second day. It is open by 9 a.m. and over by 5 p.m. The spathe will continue to give blossoms for some weeks and thus the plant is showy over a long period. A bed of tigridia bulbs planted in March, in my garden, gave the first flower in the middle of July. At this date, September 24th, flowers are still opening.

Cultivation entails no special labour. The bulbs should be planted, 6ins. apart, by the end of March. To ensure safety they should be lifted in the autumn and stored in a slightly damp condition, where frost will not reach them. They will stand a mild winter out of doors with a little protection, but it is scarcely worth risking. The plants can be raised from seeds to the flowering stage in two or three years. There are several variations in colour, from pale yellow to deep crimson. A good flower measures 6ins. across. The spathes may be cut and the flowers will open out in water at the appointed time. The weather does not appear to have much influence in the opening of the flower. Whatever the state of the weather those spathes due to open a flower, do so. I cut some spathes and placed them in a dark, cool cellar for twenty-four hours before the flowers were due to open. The treatment did not retard flowering, even for an hour. — E. BROWN, *Sittingbourne*.

PINCUSHION FLOWERS.

"THE Old English name of Pincushion Flower," so Robinson tells us, "from the resemblance of the flower-heads to that useful article, is perhaps a little more appropriate than it is elegant, although it serves its purpose very well, and, indeed, we have been told these plants are known by no other name in the country." But surely Pincushion Flower is a good deal more elegant than scabious, which, on referring to the Oxford Dictionary, I find means "scabby, affected with mange, itch, etc." In fact, these plants have long been used for curing these various complaints. As usual, Culpeper informs us how the scabious is used to cure most ills, and it is only after a long list of diseases for which this plant is good, that we come across its special use. It is important, first of all, to note that "Mercury owns this plant," and that "the juice or decoction drunk, helpeth scabs and breakings out of the itch, and the like. The juice, also, made up into ointment and used, is effectual for the same purpose."

So much for the origin of the name and the ancient uses of this plant. There are three distinct species growing wild in these islands. Of these, perhaps, the smallest and most insignificant, the so-called Devil's Bit scabious, is the most interesting. It gets its curious name from the appearance of its root when pulled up. It looks just as if it had been bitten off. Botanically the scabious belongs to the teasel family, quite an interesting family to belong to, for was not the teasel used for finishing woollen cloth long before the days of modern machines? For this reason the teasel forms part of the arms of the Cloth Workers' Company.

Of garden pincushion flowers there are several species, but only two of them are of much interest or importance, S. atro-purpurea and S. caucasica. The former, either an annual or a biennial, the latter a true perennial. Both are easily raised from seed. The Caucasian flower grows readily on a nice warm soil, but perishes if the soil be at all cold.

Of all flowers there is none that exhibits greater beauty of bud, flower and seed than does the scabious; the bud, with its unopened florets arranged in neat, concentric rings, slightly pushed up in the centre and surrounded with an irregular collarette of nice dark green bracts; and the flower, with its separate florets, opening from the periphery inwards towards the centre. The larger florets are on the outside, the smaller crowded closely together, imparting a beautiful domed appearance to the flower. The white tipped pistils, which project from each floret, are evidently the pins in the pincushion, which has given these flowers their quaint country name.

Then, lastly, there is the seed pod, no longer dome-shaped, but elongated like a large acorn, covered with reddish spikes, each little calyx forming part of a highly decorative pattern.

What a wonderful improvement on the scabious of our fields and hedgerows is this florists' flower! The huge blooms are borne on sturdy, springy stalks, the whole plant standing some 4ft. or 5ft. high. The flowers are of every imaginable shade, light blue, mauve, lavender, maroon, pink, wine colour, violet, white, some all of one colour, others with beautiful blending shades or sharply contrasting colours. Among a number of plants there always seems to be some new colour or combination to be discovered. The flowers, too, possess a curious sweetish odour, somewhat resembling that of honey.

Pincushion flowers are of easy culture. In order to obtain blossom the first summer after sowing, this operation must be done early, about March. The flowers will thus brighten the garden when summer is on the wane, passing into autumn, filling a gap between the summer flowers and those we are accustomed to associate with autumnal days, such as the dahlias and the Michaelmas daisies. Grown as a biennial, the seed should be sown in May or even later to produce plants which will be at their best early in August the following year. They are best planted out in their flowering quarters in the spring and should be carefully tied to stakes as they grow, to prevent their straggling along the ground as they are only too prone to do. The perennial scabious from the Caucasus is a very handsome plant, with larger flowers

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LILIUM HYACINTHINUM WITH ITS DANGLING BELLS.

which make up in size and form what they lack in variety of colour, for although there is a white variety, the rest are all one pleasing shade of blue.

The Portuguese are said to make use of the flower heads of scabious for funeral wreaths, under the name of Saudade.—EDWARD CAHEN.

PERENNIAL LARKSPURS.

THE great value and beauty of delphiniums as occupants of the herbaceous border are well known and there is no need to dwell on their uses or effectiveness in this section of the garden, but there are many other places where delphiniums should play a much greater part. In isolated groups, in long borders, on the outskirts of the shrubbery, or in informal groups on slightly rising ground almost no other herbaceous plant is capable of producing such a brilliant display of colour.

The delphinium of to-day cannot be classed with the perennial larkspur of yesterday. The improvement during recent years is remarkable; a wider and finer range of colour, a superiority in size and shape of the "pip," and a greater variation in height all tend to increase the uses of this plant, besides adding to its beauty.

Delphinium planting time will soon be upon us, and one must consider not only the position in which to plant but the question of colour grouping also. As a general rule, bold groups of one colour produce the best effect, and each variety should be confined to a separate spot—the paler and more delicate tints are then not killed by the richer tones. The white-centred varieties of gentian blue should not be in close association with the semi-doubles of mauve and purple. Rosy purple against clear blue strikes an incongruous note, but two tones of the same colour blend well together.

Modern lists of delphinium varieties are long and contain many choice colours; a few of the best for general purposes are: Millicent Blackmore, Rev. E. Lascelles, The Alake, Moerheimi, King of Delphiniums, Norah Ferguson, Harry Smetham, Sir Douglas Haig, W. T. Ware, Blue Bird, General Byng, Moonlight, Smoke of War, Robert Cox, Little Boy Blue, Mrs. Creighton, Elsa, Duke of Connaught, Lorna Doone, Lizzie Van Veen, and Mrs. Townley Parker.

Delphiniums prefer a rich soil, and to light soils cow manure should be added. In all but heavy soils, planting should be done soon. Where the soil is on the heavy side, it is far better to wait until the spring to plant, and at this time to attend to the improvement of the site, which can be achieved by deep trenching and addition of lime and grit.—M. P.

THREE INTERESTING LILIES.

THE following notes and illustrations of three of Farrer's lilies may prove of interest to readers of THE GARDEN:

LILIUM HYACINTHINUM (FARRER NO. 1064).

The flower is well shown in the illustration. It is of a soft smoky lilac colour, each petal tipped with vivid green. Flowering in June, it grows to a height of 4ft. 8ins. The bulb seems to perish after flowering just as that of L. giganteum. It remains to be seen whether offsets appear round the old bulb. Seed is freely produced and ripens well.

LILIUM BROWNII VAR. COLCHESTERI (FARRER NO. 911).

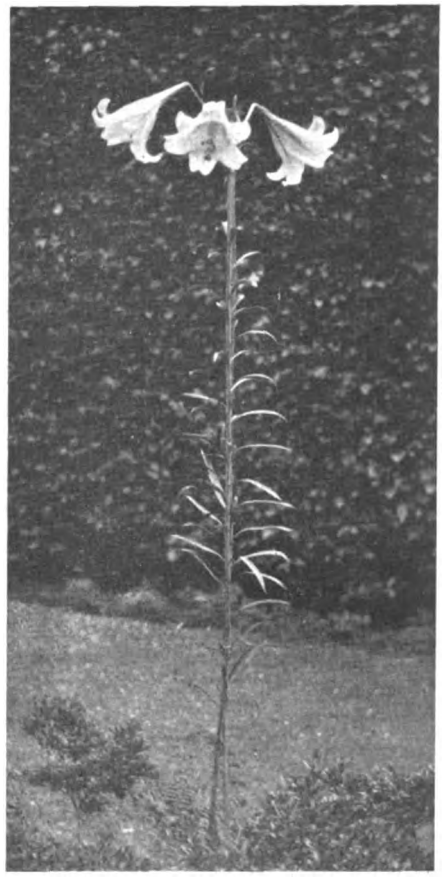
This is a plant raised from seed collected by Farrer in 1919, and is now in flower, 4ft. 8ins. in height, the flower 5ins. by 5½ins. across the petal, with a dark crimson line outside and a green stripe inside the flower.

LILIUM SPECIES (FARRER NO. 1122).

We have a very fine form of a species flowering in July, yellow, with a deep maroon blotch in the centre of the flower. Many of the plants were 6ft. high, producing ten to twelve flowers.—K. MCDOUALL, *Stranraer*.

[Experts differ as to the exact specific name of this plant. Mr. E. H. Wilson in his "Lilies of Eastern Asia" calls it by

LILIUM NEPALENSE. F. 1122.



THE TALL AND HANDSOME LILIUM BROWNII VAR. COLCHESTERI.

Franchet's type name of L. ochraceum. Professor W. W. Smith, on the other hand, believes that Farrer 1122 is L. nepalense var. burmanicum, and that L. ochraceum is the Chinese representative of L. nepalense and is conspecific but varietally different. In which case nepalense would hold good, being the older name.—ED.]

ROSS'S WATER AVENS.

GEUM ROSSII, a scarce American species, is obtainable from hardy plant nurseries, and is worthy of the notice of those who purpose adding to their rock gardens or who think of obtaining new plants for the front of the border. It hails from North America, is perfectly hardy and is highly pleasing with its shining foliage and its good yellow flowers, on stems which vary from 3ins. to 9ins. high. It would be wrong to state that it has the free-flowering brilliance of G. Borisii, as it more nearly resembles the best forms of G. montanum, a shy bloomer in many places. G. Rossii does not always flower with the freedom we would desire, and I have recently formed the opinion that in the past it has frequently occupied too dry a situation and that it will give much more satisfaction in a moist position. It is said to be properly named Sieversia turbinata, but this name is not likely to be readily adopted, and it almost invariably figures under the easier one of Geum Rossii in lists and in gardens. Its shyness of flowering in many gardens is the great barrier to a plant which has such attractive foliage as this.—S. ARNOTT.

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THE CULTIVATION OF THE CURRANT

NOW IS THE TIME TO THINK OF PREPARING NEW PLANTATIONS OF BUSH FRUIT.

THE black currant is perhaps more generally grown than any other fruit, and it is unusual to find even the smallest garden without at least a few bushes. It cannot, however, be claimed that they all yield good crops, and in many cases the bushes are almost useless.

At one time the culture of black currants was a fairly easy matter, and under good cultivation bushes were kept in healthy bearing for many years: fifteen to twenty years being quite common. Now, owing to the prevalence of the pest "big bud" or black currant mite, and the newer trouble of "reversion," the profitable age of the bushes has been curtailed considerably.

Bushes attacked by big bud are easily recognisable, for, as the description implies, the affected buds are swollen much above normal size. Such buds contain thousands of mites, which feed on the embryo leaves and render the buds abortive.

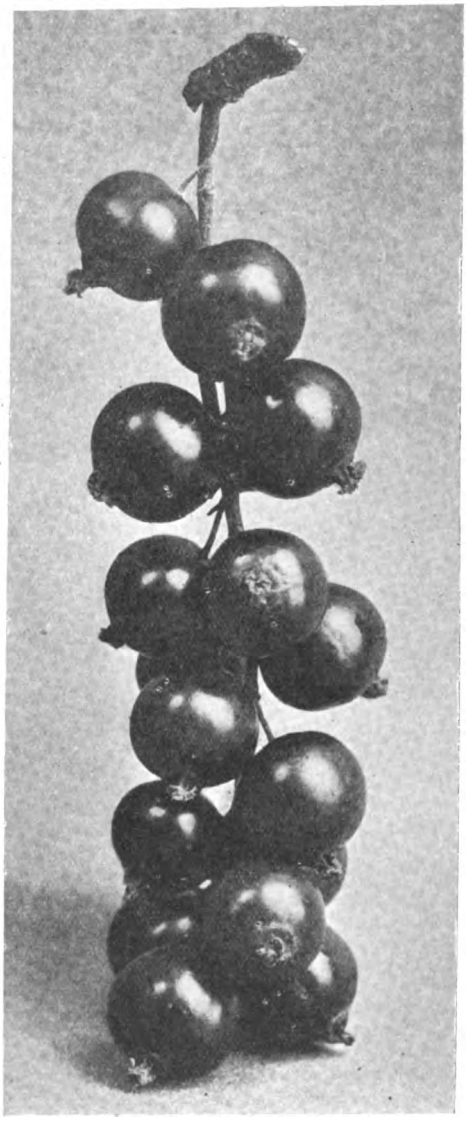
Control is, no doubt, the wisest measure. This comprises the propagation from clean stock, burning prunings and hand-picking. The latter, provided a start is made with clean stock, is most important. The bushes should be examined and as soon as any attacked buds are detected they should be picked off and burned. It is also advisable that the buds above and below the infected ones be removed, as they often contain mites. It is most important when buying to insist upon getting a healthy stock.

The next step is to plant, if possible, on a piece of clean ground. This will not, however, ensure immunity, especially if any infected bushes are growing in neighbouring gardens. In this case infection may take place as the mites migrate during March and April. Hence it is the duty of all to endeavour to keep the bushes clean. It is claimed for certain varieties that they are immune, or at least much more resistant than others. Black currants can be classified into groups according to the colour of their buds. Most varieties come under either (1) reddish buds or (2) whitish buds. It would appear that the varieties having the reddish buds are less subject to attack than the whitish ones. A few popular sorts under these characters are (1) French, Seabrook's Black and Boskoop Giant; and (2) Baldwin and Goliath. It is fairly generally known that the two latter varieties are particularly liable to attack; but all varieties can probably be found infected in one place or another.

CULTURE.

The black currant will thrive in any good garden soil, though a deep sandy loam is best. In any case it must be well drained. The ground should be double dug and, if necessary, plenty of farmyard manure incorporated at the time of digging. It is by no means easy to get exactly the manure one would like, but pig-manure is generally considered about the best, though any good farmyard manure will do.

To obtain the best flavour they should be planted in an open situation. They will, however, do quite well on borders facing north, and in such positions provide a succession of fruit to those planted



BLACKSMITH, A VARIETY OF GOOD QUALITY.

where they get the full benefit of the sun's rays.

In small gardens black currants and gooseberries are often found bordering walks. This is convenient for gathering, perhaps, but I prefer to see them given a space to themselves, or, where space permits, intercropped between top fruit.

PLANTING.

Planting is best done in autumn, but it can be done at any time from autumn till spring if the soil is in a suitable condition. At one time it was usual to plant the bushes 6ft. apart each way. Now, some growers adopt different methods, owing to the big bud and reversion trouble. One system is to plant 6ft. apart each way, but, instead of planting one bush at every 6ft., three are placed triangularly about 18ins. apart. The idea is to prodcure a good crop off the space within a few years and should the plants then show signs of reversion or have much big bud on them they are rooted out and the grower has the satisfaction of feeling that the space has not been wasted. Another system is to plant at 6ft. between the rows and 3ft. from plant to plant.

Holes sufficiently large to take the roots easily should be opened, and the roots exposed as little as possible before planting. Some fine soil should be well worked among the roots. This will ensure them getting a good start. Tread fairly firmly and finish neatly, leaving a loose surface.

When it is convenient to do so, one year old bushes should be chosen instead of two year old, which are generally planted. The first will receive less check at transplanting than the larger two year old bush.

When planting a yearling it is important to cut the growths hard back. During the second year, under favourable conditions, three good growths or more will be produced, and these will form the base of a good bush.

When buying two year old bushes, unless specially asked for, the number of growths may easily vary. Should any of them have only two growths one should be cut hard back. The subsequent pruning of such bushes is simple and merely consists of cutting out old wood after fruiting and encouraging young shoots from the base.

CULTIVATION AND MANURING.

The black currant is a gross feeder. Healthy bushes have masses of fibrous roots which are active practically all the year round. This fibrous root system should govern much of the work.

On no account should the soil around the trees be deeply dug. This would not only be likely seriously to check growth by damaging the roots, but it is generally believed that such treatment is conducive to reversion.

Weeds should be kept down by hoeing. Mulching is an important item, especially when the bushes get into good bearing. A splendid dressing is that from old hot-beds. These are generally made up of stable litter and leaves, and such a mixture would maintain a fine mulch into which the fibrous roots would penetrate. Top-dressings of farmyard manure are required annually. These can be given after pruning. A combination of farmyard manure and artificials is better than either separately.

A moderate dressing of farmyard manure would be such as to give a thin covering around the bush to the extent of its spread. This could be supplemented in spring by 4 oz. superphosphate, 2 oz. sulphate of potash, and 1 oz. of sulphate of ammonia to each bush. Bone-meal is a good fertiliser, so also is fish manure given at the rate of 4 oz. to each bush in two dressings, autumn and spring. These manurings and mulchings will

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play the dual part of feeding and conserving moisture. In most seasons this would be sufficient.

VARIETIES.

A few of the best varieties are: Baldwin, French, Boskoop Giant, Seabrook's Black, and Goliath.

BALDWIN makes rather a dwarf bush with compact growth. The fruit and trusses are of medium size, but are produced in greater quantity than some varieties with larger fruit and it generally returns the heaviest crop of those mentioned.

FRENCH makes a large compact bush. It is later coming into leaf and flower than most varieties, and for this reason often escapes frosts which some of the earlier varieties catch. The berries are of medium size, but it is a good cropper.

SEABROOK'S BLACK is a good variety and largely grown, and is claimed to be largely resistant to big bud.

BOSKOOP GIANT is a very popular variety. It is a strong grower and makes a spreading bush. The bunches of fruit are longer than any other and the berries are very large; but as the trusses are often produced singly from a spur, it does not yield such a heavy crop as some of the other varieties.

GOLIATH makes a medium erect bush with strong growth. The fruits are medium to large.

BLACKSMITH and EDINA are also grown in quantity, and are good sorts.

RED AND WHITE CURRANTS.

These are, fortunately, less troubled with pests than the blacks, and they escape both big bud and reversion.

The culture is, in many respects, the same as for the blacks. One important difference is in the method of training and pruning. They adapt themselves readily for training as cordons, fans or bushes. A good bush of red currant should have about eight to ten cordon-like branches. The fruit is produced on spurs. Each leader is pruned back during winter, allowing about 6ins. or 8ins. of new wood for extension until the full size is reached. The laterals are shortened back during summer to within a few inches from the main stem, and any superfluous ones removed entirely. This will admit light and air and assist in the development of fruit buds for the following year. At winter pruning the laterals or spurs are further pruned back to about 1in.

Red currants are often badly attacked by aphis, and this must be controlled. As much of this occurs on the tops of leading shoots, a few inches can be pinched off without injury and burnt, thus getting rid of a lot of the pest. In addition, dipping or spraying, as advised for blacks, is often necessary.

VARIETIES.

Three of the very best varieties are Laxton's Perfection, Comet, and Fay's Prolific. White currants are not much grown, but a few are generally appreciated. White Versaillaise is a splendid variety.

BERKSHIRE.

PLANNING AND PLANTING A FRUIT AND KITCHEN GARDEN

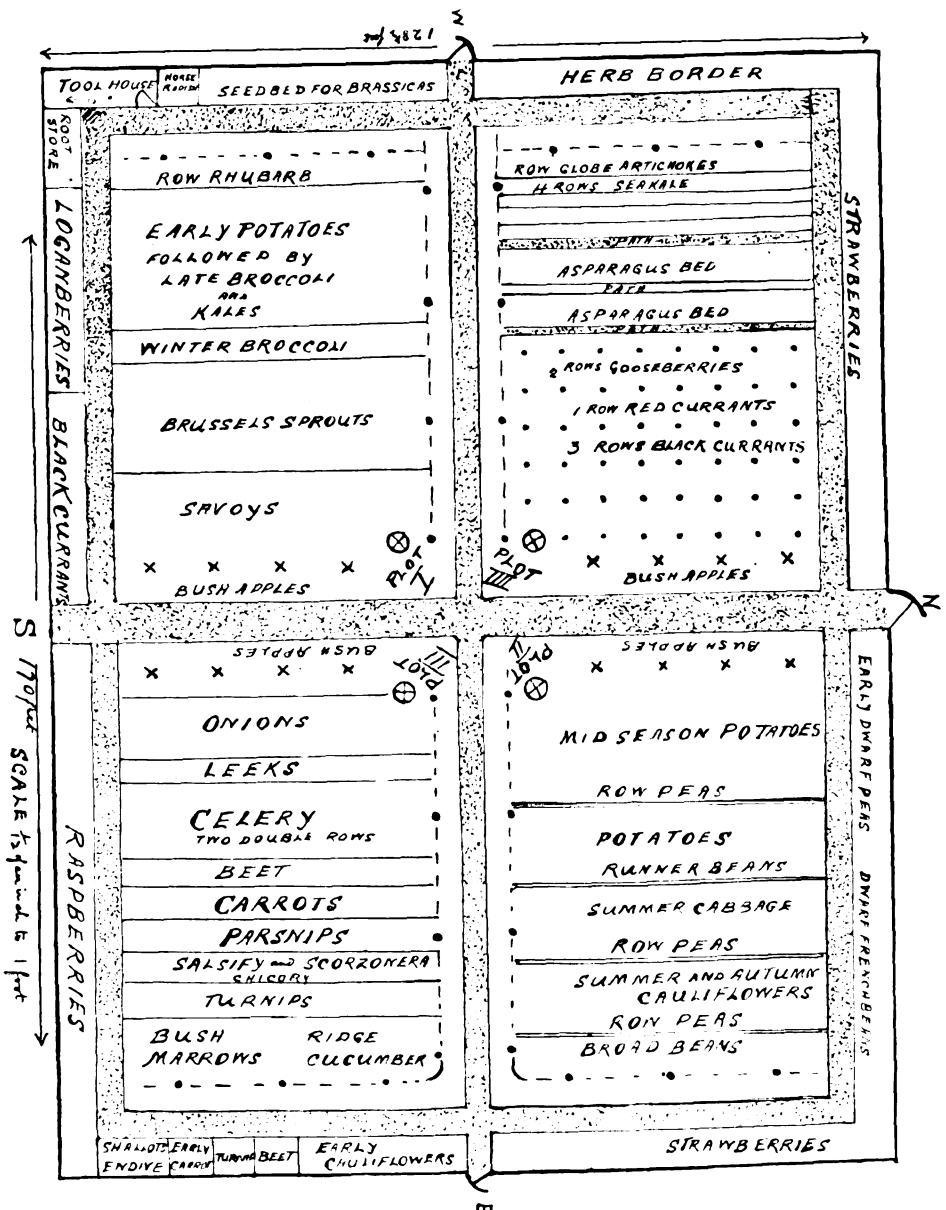
THE accompanying plan for a fruit and vegetable garden encloses an area of half an acre. Many modern gardens will not, probably, be surrounded by fine walls as was usual at one time. It is, therefore, to be imagined, in this case, that the garden is enclosed by a wooden fence or paling 6ft. high, such as is often seen at the present time.

On such fences cordon fruit trees of many kinds can be successfully grown, and a few low-trained fan-shaped trees would also be possible. On the south fence of 164ft. a few trees of peaches, nectarines and plums of the latter shape could be planted at 15ft. apart. Suitable varieties could be chosen from Hale's Early, Amsden's June, Goshawk, Barrington and Bellegarde (peaches); Early Rivers, Elruge and Lord Napier (nectarines); and Early Transparent Gage, Denniston's Superb, Jefferson's, Oullin's Golden Gage, Coe's Violet and Allgrove's Superb (plums).

The west fence would be ideal for cordon pears. These could be planted obliquely towards the south at 2ft. apart, and as 124ft. of space is available, a good collection of varieties could be accommodated. A few indispensable varieties are: Clapp's Favourite, Williams' Bon Chrétien, Souvenir de Congrès, Marguerite Marillat, Beurré Hardy, Beurré Superfin, Louise Bonne of Jersey, Doyenne du Comice, Josephine de Malines, ripening in the order named.

On the east fence, plums and sweet cherries could be grown as cordons or low fan-trained trees. A few reliable varieties are Czar, Early Prolific, Belle de Louvain, Pond's Seedling, Monarch and President (plums); Early Rivers, Frogmore Bigarreau, Governor Wood and Elton Bigarreau (cherries).

Loganberries, raspberries and black currants are suggested for the north border. The only fence space available would be behind the black currants, and this would accommodate two Morello cherries if desired.



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Espalier-trained trees are arranged for on either side of the long central walk and set back 4ft. from the edge, 18ft. being allowed between each tree. The space allows for sixteen trees, and the following varieties of dessert apples are suggested to give a succession: Irish Peach, James Grieve, St. Everard, Ellison's Orange, The Houblon, Cox's Orange Pippin, Mannington Pearmain and Sturmer Pippin.

Culinary sorts should be chosen for the eighteen bush trees on either side of the central cross walk. A few excellent and popular sorts are Potts' Seedling, Early Victoria, Rev. W. Wilks, Stirling Castle, The Queen, Lane's Prince Albert, Bramley's Seedling, Newton Wonder and Annie Elizabeth.

In the four circles set at 16ft. from the centre of cross walks, standard apple trees are suggested. Coronation, Cox's Orange Pippin, Chas. Ross and Allington are a few good ones.

At each end of the garden, space is allowed for six espalier-trained pear trees. Conference, Pitmaston Duchess, Emile d'Heyst and Conseiller de la Cour can be recommended as likely varieties to give satisfaction.

A black currant bush could be planted between each of the bush apple trees, which are 10ft. apart. Space is also given to this popular fruit on Plot 4 and on the north border. Owing to the normal profitable period of black currant bushes being often curtailed through an attack of big bud mite, unorthodox systems of planting are occasionally found, such as planting in groups of three at 1ft. apart ***: the object being to obtain value for space while the trees are young and vigorous. This system might be tried on the north border, where the area would accommodate six groups through the centre at 6ft. apart. On Plot 4 single bushes should be planted at 6ft. apart. Popular varieties are Boskoop Giant, Baldwin, Seabrook's Black and Edina.

One row only is allowed for red currants, as this fruit is not in great demand. Fay's Prolific and Laxton's Perfection are two of the best sorts.

Choice gooseberries are Langley Gage, Langley Beauty, Whinham's Industry, Warrington, Green Gascoyne and Lancer.

Strawberries are placed on the south and west borders; these and the north and east are 6ft. wide. The two positions give a total length of 144ft. and would take rather over 200 plants. Three plants should be set at 18ins. apart across the border with 2ft. between the rows.

VEGETABLES.

An examination of the plan from the vegetable standpoint will show that consideration has been given to the rotation of crops, continuity of supply, and variety.

Plot 1 is mainly for brassicas.

Plot 2, potatoes, peas and beans, with an intercrop.

Plot 3, roots.

Plot 4, permanent crops.

This allows for a three years' rotation course. Thus, brassicas would in the three years occupy Plots 1, 3, 2; potatoes, etc., Plots 2, 1, 3; roots, 3, 2, 1.

Each year, after clearing the root crop, the ground should be double dug and fairly well manured for the following year's brassica crop. The spring cabbage crop is frequently given a portion of the ground cleared of onions, and would reduce the space for double digging.

The brassica ground would be dug as the crop was cleared, and moderately manured ready for potatoes, etc.; artificial manures would also be given at the proper time. Following potatoes and other crops, the ground would be dug for root crops, no manure being given. Celery trenches would, of course, receive the necessary quantity.

The measurement of each of the four plots enclosed within walks is 72ft. by 52ft., or about 13 poles.

PLOT 1.—Twelve rows of early potatoes at 20ins. apart. Immediately these are dug the ground should be filled with broccoli and kale. Varieties must be carefully chosen in order of maturity. Veitch's Protecting, Snow's Winter, Eastertide, Late Queen and Whitsuntide should succeed each other; the largest proportion should be of Eastertide, as choice vegetables are generally scarce in early April.

Seven rows of Brussels sprouts will occupy the 18ft. allotted, and eight rows of savoys complete the plot. Best of All, New Year and Ormskirk Late Green savoys will provide a succession.

PLOT 2.—Ten rows of mid-season potatoes at 30ins. apart, one row runner beans, three rows of main-crop peas sown in succession. The spaces between the beans and peas are 12ft. each. One will take five rows of summer cabbage such as All Heart and Sugar Loaf, and the other five rows of cauliflower, White Queen and Autumn Giant.

PLOT 3.—Ten rows of onions will occupy 10ft.; double row of leeks, 3ft.; two double rows of celery, 12ft. On the ridges could be planted either early dwarf peas, dwarf beans or lettuce. Four rows of beet, 4ft. Five rows of carrots, 5ft. Three rows of parsnips, 5ft. One each of salsafy, scorzonera and chicory, 4ft. Five rows of turnips, in two sowings, 5ft. Bush vegetable marrows and ridge cucumbers complete the plot.

PLOT 4.—Permanent crops, with the possible exception of part of the seakale, which could be lifted for forcing and thongs replanted in spring. The two asparagus beds are 5ft. wide.

BORDERS.

Early dwarf peas in two or three sowings and dwarf French beans for earliest supply are given one of the south borders.

Following the peas, a portion could be sown with dwarf French beans for the latest crop, also spinach, etc.

The west border will be an ideal place for early cauliflowers, twelve rows (autumn sown) and planted in spring, beetroot, early carrots, turnips, shallots and endive, followed by lettuce, autumn-sown onions, winter spinach and the spring cabbage seed bed.

The north border in front and among currants might prove a congenial position for summer lettuce, especially if the weather be hot and dry.

The east border to left of outlet is chosen for the brassica seed bed and horse-radish. If a tool-shed is necessary inside the garden, as it generally is, the bottom corner of this border is the best place.

The border to right of door is an ideal one for a well planned herb border. Popular kinds, such as mint, sage, thyme, lemon thyme, tarragon, marjoram, chives, chervil and parsley should be grown in such quantities as will meet the requirements of the cook.

The narrow borders on either side of the central path will be especially useful for pricking out seedling plants, sowing small batches of seeds and for propagating purposes. A few garden frames will be a necessary equipment to a garden of this size, but whether they are placed inside the garden or in a frame yard is a matter solely dependent on individual circumstances.

The long central walk and the surrounding walks are 4ft. wide, and the cross central walk 6ft. wide.

ARTHUR J. COBB.

GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants.

THE AUTUMN TREATMENT OF SOILS.

THE thorough cultivation of the soil at this time of the year is a task which, although somewhat arduous, must be regarded as one of the most essential factors towards successful cropping during the ensuing season. The abundant application of manures is of little avail without the correct working of the land. Too much emphasis cannot be laid upon the value of good deep cultivation at the latter end of the year, in conjunction with continuous surface cultivation during the actual growing periods. It is not sufficient simply to turn over the top spit with a fork and leave it. Wherever possible double digging should be resorted to in order that the sub-soil may be thoroughly broken up and aerated, while the top spit should be laid up in parallel ridges and left to lie fallow throughout the winter. The nutriment in the sub-soil is thus rendered more accessible to plant roots and the greatest possible area of the surface soil is exposed to the rigours of winter frosts. In this respect a spell of good hard frosty weather must be looked upon as a great boon to the cultivator, for it undoubtedly plays a great part in sweetening the soil and ridding it of many unwanted pests. If the soil is devoid of humus or has become impoverished from constant use, an application of stable manure is advised and this should be well mixed with the sub-soil when it is being broken up. If stable manure is not obtainable a dressing of Wakeley's Hop Manure will be found to give excellent results, supplying the soil with both humus and valuable plant foods. Where an abundant supply of garden refuse has been collected, this should be treated with "Adco," which is a proprietary compound recently introduced. By this method a quantity of really

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*British Queen	*General McArthur	*John Davison	*Mme. Ravary	*Prince C. de Rohan
*Capt. Hayward	*G. C. Waud	*Juliet	*Mme. L. Pain	*Pharisaer
*Caroline Testout	*Gloire de Hollande	*K. A. Victoria	*Mrs. A. Ward	Queen Mary
Cheerful	*George Dickson	Killarney	Mrs. F. Dennison	*Richmond
*Covent Garden	Golden Emblem	King George V	*Mrs. G. Shawyer	*Red Star
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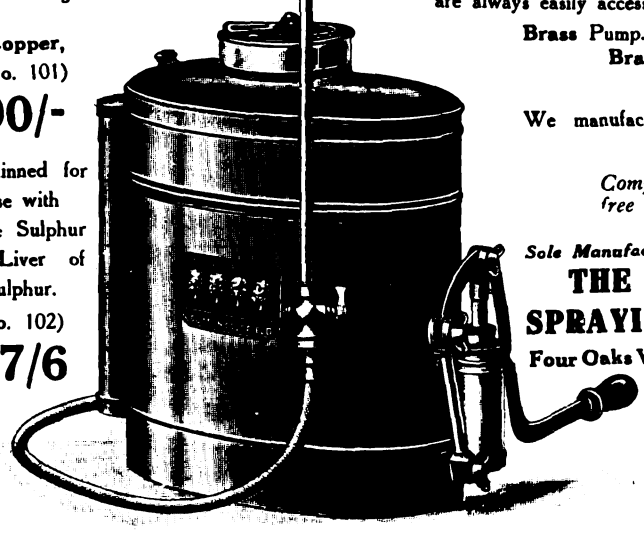

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Mr. P. H. Martineau and the Public Trustee (the Executors of the Will of the late Mr. Anthony Waterer) have agreed that, as from the 5th October, 1925, the business, which was formerly carried on by the late Mr. Anthony Waterer, and since his death, by his Executors, shall be carried on by Mr. Hosea Waterer.

Mr. Hosea Waterer proposes to carry on the business under the name of Knap Hill Nursery (late Anthony Waterer) Proprietor, Hosea Waterer, and cheques should be made payable to "Hosea Waterer."

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good synthetic manure is always on hand which is rich in humus and nutritious plant foods. Liberal applications of lime are usually advocated at this period, but care should be used in this respect. Copious dressings with this material are unnecessary where a sufficient quantity of free lime is present in the soil.—C. J.

ON CHERRIES.

THE cherry is undoubtedly one of our most popular fruits, and rightly so. It is practically the first of the season's fruits to ripen and for this reason alone is worthy of a place in every fruit garden. It thrives in a rather rich and sandy soil, to which a moderate amount of old mortar rubble or well slaked lime has been added. Broadly speaking cherries may be divided into two distinct types, the sweet or dessert cherry, and the Morello or pie cherry. If grown as standards, pyramids or bushes, they should be given an open, sunny position, but they are particularly valuable for training as wall trees. The earlier types of dessert fruit will be found to thrive on a south or west wall, while the Morello does exceptionally well on a north wall. They are best left unpruned the first year of planting and the less they are cut the better at all times, for they have a nasty habit of "gumming." The two types differ in this respect. The sweet cherry bears its fruit on spurs which form on wood of the previous year's growth and continue productive for a number of years, while the Morello type bears its fruit on the young, wand-like shoots that were formed during the last year's production. This is an important factor when pruning has to be considered. In dealing with the former, practically all side shoots must be kept in check and if the spurs come too thickly, they should also be thinned. In pruning the latter type, however, we must be careful to retain as much as possible of the new growth to take the place of old wood that should be cut away after the fruit has been gathered. Good varieties of dessert cherry are Early Rivers (June), Black Tartarian (June), Black Heart (July), Bigarreau (July), Noble (August), Florence (August). Good cooking varieties are Flemish Red (July), Kentish Red (July), Morello (August).—J. C. A.

SOWING BROAD BEANS AND PEAS.

THE broad bean thrives in a retentive soil where the latter is well prepared; the pea does best in a lighter medium. In nine out of ten gardens it is possible to sow seeds of these two valuable vegetables in the autumn with a good prospect of success. Where soils are quite unsuitable, it is much the wisest plan to defer sowing until the spring, either under glass or in the open border, and to devote the time and energy to improving the soil in the meantime. In the spring we naturally select an open border for our first broad bean crop; but in the autumn we, as naturally, select the warmest for both beans and peas. An early maturing variety, too, should be sown. First, the soil should be trenched or, at least, deeply dug and the manure buried. I use the word "buried," as it is advisable to do this so that the roots of the plants will not come into contact with the manure before next spring. It should, therefore, be at least 5ins. below the seeds when the latter are sown, and not in a solid mass, but well mixed with the soil. The young plants only need the support that the unmanured portion of the soil can afford them from the time of germination till early springtime, when growth becomes active. When the roots reach the manure the plants become strengthened to flower and pod well. A forced, soft stem and flabby leaves will not ensure such satisfactory crops. Use red lead against attacks by birds, mice and rats.—G. G.

PLANTING FRUIT TREES NEAR WALLS

CULTIVATORS who possess suitable walls, whether they are ordinary garden walls or those of farm or house or shed buildings, should make the most of them for fruit growing. Full use is not made of good available walls in this country, and I think it is a great pity that they remain so bare. I am not advocating the nailing of branches to walls, as nailing does much damage to them and makes holes wherein insect pests hide. Close-to-wall wires are much the best. Then we have the foundations of walls to consider. From a cultural point of view it is not advisable to plant fruit trees with their roots and main stems close to the wall itself, so that the foundations of the latter will not be disturbed. The holes for the roots should be made large enough to contain them without any cramping, and when the roots are placed all of them should be spread out from the wall, not any towards it, the stem of the tree being at least 9ins. from the face of the wall; this distance allows for the free swelling of the stem without its coming into contact with the wall much later on. Nearly all wall trees suffer through lack of water at some time during the year, so that, on sloping ground especially, level surfaces quite 3ft. by 2ft. should be the rule, to retain both rain-water and that applied through a watering-can for the benefit of the roots. It always pays the cultivator to take some trouble in getting good fibrous loam for every tree and old mortar rubble for stone fruits.—HANTS.

CORRESPONDENCE

CYCLAMEN.

SIR,—Your correspondent in the article on the above (October 3rd, page 553) has omitted one of the best of hardy cyclamen, C. Atkinsii, the hybrid between C. ibericum and C. Coum. There are two or three different forms listed now. They flower like the parents at a season when flowers are scarce and on this account are doubly welcome. Once established they flower with remarkable freedom and in a sheltered spot seem to be able to withstand a lot of rough weather.—KUKLOS.

SUPPORTING MICHAELMAS DAISIES.

SIR,—For some years past I have practised the single stem method of growing these beautiful plants, but as the Rev. Joseph Jacob remarks, the side shoots are brittle and are frequently broken off in inclement weather. To overcome this I stake each plant separately, using an iron rod, when the side shoots have fairly well developed. I find that a loose tie of raffia around all is sufficient to support the side shoots; this has proved quite satisfactory and if it is done in good time no support or tie of any kind should be visible and the plants will maintain their natural and graceful shape.—A. WHITEHEAD.

RANUNCULUS GLACIALIS IN THE DOLOMITES.

SIR,—I was interested to see in THE GARDEN (Oct. 24th, page 598) a picture of Ranunculus glacialis taken from the Piz Langard. I have never visited Switzerland in the summer, but I have met Ranunculus glacialis often in the volcanic outcrops of the Dolomites. There is one particular area where it grows in the most princely abundance and in a wonderfully fine broad-petalled form—the last few hundred feet of the climb to the Passo di Selle. There the form is huge,

THE BEAUTIFUL SPREADING R. PARNASSIFOLIUS.

and the colour varies, according to the age of the flowers, from pure white to deep rose. I was most impressed by the intermediate colours of lovely apple blossom tint. I have seen the plant flower in cultivation, though it is exacting and seems to want a mixture of heavy non-calcareous clay and abundance of stones, but the blossoms never seem to become pink in England. I might claim, I think with some reason, that this few acres of ground at the summit of the Selle pass, at about 8,000ft., provide a richer provender for the flower lover than even the appetising description of the summit of the Piz Langard. There were there Ranunculus glacialis, Geum reptans, Eritrichium nanum, Ranunculus Seguieri, R. parnassifolius (there is limestone on the pass as well as granite), Primula glutinosa, P. minima, Anemone baldensis, Gentiana brachyphylla and, I believe, G. imbricata. Farrer speaks encouragingly of hybrids between the two primulas, but in August, when I saw this paradise, only glutinosa was in flower.

I enclose a photograph which shows that rare but hearty high alpine Ranunculus parnassifolius in its fine and most spreading form, a plant that will do the same for you at home if you give it some limy soil and full sun and moisture.

And now, finally, with regard to Androsace glacialis in the Dolomites. Mr. Todd in his interesting talk about colour forms of alpine plants said that Androsace glacialis was invariably white in the Dolomites. I thought so myself until my last visit. I had found it invariably white on the granites round the Pordo Joch. But this last time I found a new volcanic outcrop—on the Coutrin Joch, where the southern face of Marmolata drops to earth—a comparatively tiny strip surrounded by white limestone. There I found two or three pieces of pink as well as white Androsace glacialis. But whether it was as pink as the plant found in Switzerland I do not know, because I have never seen the Swiss plant except at

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Mr. Clarence Elliot's nursery, where I am sure he will forgive me when I say there were only one or two flowers! Happy are those who can produce even those!—R. L. HOLDSWORTH.

PLANTING THE IRIS.

SIR,—There is much question about the best time to plant the iris. Some say July, some August, others October. Let those who like value for money plant in July. I bought a novelty at a high price and planted it in July. It was a single plant. By October it has thrown up five new strong shoots each now 6ins. high. This increase has more than paid the cost of the plant. If I had planted in October, the single plant would have remained a single plant well into the middle of next year, as no nurseryman would be so good as to supply me with a novelty with all this new growth attached to it.—H. C.

CROCUS PULCHELLUS.

SIR,—I cannot answer Mr. Blanchard's question about his interesting specimen of Crocus pulchellus specifically, as I do not remember actually to have seen the particular abnormality enquired about in that particular species. I think, however, that Mr. Blanchard will find such increases or reductions in the number of segments not uncommon among crocus species generally. I have found them in a good many species. So large a number of segments as ten is, of course, not very common, though I have actually seen in a specimen of C. chrysanthus fuscotinctus many more.—H. A. GREATOREX.

SARCOCOCCA RUSCIFOLIA.

SIR,—I see Mr. Canning-Wright mentions this plant in his article on "Fragrant Shrubs," in THE GARDEN of October 24th, 1925. We have grown it here for years and this year to add to its beauty, it is carrying a large crop of red berries. This is the first time it has fruited with us. It is a shrub of easy culture, thriving equally well in shade or sun, and no doubt will be more frequently met with when better known.—R. MOORE, *Thorpe Hall Gardens, Essex.*

GARDEN RUBBISH.

SIR,—With reference to Mr. Macself's article on the use of garden rubbish as manure in your issue of October 3rd, I consider that he greatly exaggerates the dangers likely to arise therefrom.

I know nothing about "Adco," as I have not yet used it, but I should say there is certainly a future for some agent which will add to decayed vegetation the constituents which are lacking, so as to form a balanced plant food.

I have trenched in all soft garden rubbish, such as cabbage stalks, dead leaves, mown grass, etc., in these gardens for the past eighteen years, and have never experienced any increase of pests through doing so. In fact, my difficulties with pests have gradually become less, owing to improved methods of controlling these by spraying, etc.

The only refuse we burn is hard, woody stuff, which does not readily decay, and of this we build a tidy and shapely heap. This latter is lit on a favourable day, and is generally all consumed in an hour or so, the resultant ashes being used in the garden also.

By following this method I have quite done away with the unsightly and smelly rubbish heap, and also the equally objectionable smother fire, both of which become a nuisance when hard and soft rubbish are carried to the one heap, and futile efforts occasionally made to burn it.

If all the dangers depicted by Mr. Macself really exist, generations of gardeners must have been mistaken in regarding leaf-mould as one of the safest and most reliable constituents of nearly all their composts. Because, although we are certainly advised to use only clean beech and oak leaves for the making of this, I do not suppose it would be possible to find a bushel of dead leaves of any kind, which, under the microscope, would not display thousands of potentially harmful eggs and spores. It is a point of some importance to all gardners—T. E. TOMALIN.

THE IMPERIAL FRUIT SHOW

THE Holland Park Rink, London, which was quite recently the venue of the Royal Horticultural Society's great Autumn Flower Show, has presented us with an entirely different appearance during the last ten days from October 30th until November 7th, on the occasion of the annual Imperial Fruit Show. In place of groups and banks of glowing foliage and beautiful flowers, the centre of the hall was occupied with stands which simulated glorified open shops where the various firms and associations displayed their specialities with great artistry.

It is a pleasant thing to be able to record that from the artistic point of view as well as in usefulness the honours lay with the English nurseryman. We missed the usual exhibits of a few traders—Messrs. George Bunyard and Co., for example—but many others were splendidly represented. At one end of the hall Messrs. Waterer, Sons and Crisp had little bush apples heavily laden with magnificent fruits, and fronted with innumerable baskets of brilliant apples and luscious pears.

Other growers set out their spaces with model plantations of perfectly grown fruit trees.

Messrs. W. Seabrook and Sons had two spaces where they planted apples and pears over currants of all types, and had ideal fan-shapad trees growing against their building. The cordon apples of Messrs. Daniels Brothers claimed the first attention of the fruit grower. Their specimens were fully 5ft. long and ideally studded with fruiting spurs. The chief varieties were Cox's Orange Pippin, Ellison's Orange, Worcester Pearmain and King of the Pippins. On a stand in the front of their exhibit they had magnificent bunches of Muscat of Alexandria and Gros Colmar grapes, with many baskets of apples and pears of equally high quality.

Their new dessert apple Lord Lambourne, which is in season from October to December, was prominently shown by Messrs. Laxton Brothers, whose older varieties included Houblon, Bedford Pippin, Roseberry and Worcester Pearmain of glorious colour.

In a very attractive stand the Barnham Nurseries Company had perfect little fruit trees and handsome fruits of Washington Nonpariel, Bismarck and Worcester Pearmain. A useful plantation of apples, pears and black currants was set out by Messrs. Brinkman Brothers.

Recognising the fact that any association content to go on in the same old way year after year soon loses hold and interest, the promoters of the Imperial Fruit Show have wisely formulated a progressive policy and have a number of new features this year. These mostly appeal to the exhibitors and render it possible for every grower in the kingdom, no matter on how small a scale, to exhibit. With this end in view the number of packages of fruits has been materially reduced.

As might have been expected, apples largely predominated at the Show, and with the more important classes these were packed in boxes. In nearly every instance great skill and judgment had been displayed, and this method was equally as successfully practised by the home grower as by the Colonial. Success in packing boxes of apples requires great judgment in grading, and this our home growers have acquired in a marked degree, and there was such perfect alignment of the fruits that it almost seemed as though the fruits were grown for the boxes rather than the boxes made for the apples.

In certain quarters there is a general impression that Colonial-grown apples are invariably more highly coloured than English fruits, but a visit to the Show would do much to correct this. At first sight it may seem that the fruits of Jonathan, Spy, King, Snow and Spitzbergen, to name the chief Colonial highly coloured apples, were better in this respect but the critical visitor soon realised that this superiority was more apparent than real and owed the impression to sheer quantity, for in the English exhibits, and especially those from Kent, the colour of Cox's Orange Pippin, Houblon, King of the Pippins and Charles Ross, to name only a few, was fully as brilliant as the Colonial samples, and in addition these fruits also possessed the extra merit of an underlying flush of golden colour, which invariably tells of high quality. Nothing in the apple line could be more attractive or appetising than the scarlet and golden King of the Pippins in many of the United Kingdom exhibits.

The chemical aids to successful fruit growing received due recognition at this great Show and various firms were prominently placed. For example, the well known Abol hand and knapsack sprayers with samples of their chemical manures and specifics were attractively displayed. Nicotex, No. 2 Fruit Wash and Katakilla, prepared by McDougalls, were set out with fruits grown by their aid, as also were Messrs. Bugges' insecticides.

Fison's fertilisers have long been valued, and the display was admirable; while Alvesco, which Messrs. Murphy and Co. recommend for the extermination of the white fly pest, was also on view.

Messrs. G. H. Richards, Limited, claimed that theirs was the only exhibit of horticultural sundries, and on a large stand they set out every aid and necessity that could be imagined, while giving special place to their XL All fumigant.

The great importance of the scientist in relation to cultivation was fully displayed. The Ministry of Agriculture had a selection of leaflets relating to fruit and the fruit-growers' enemies. From the East Malling Research Station were sent illustrations and diagrams, while the authorities from Long Ashton showed the result of studies in the development of the Royal Sovereign strawberry and the relation between the stock and the scion in the growth of fruit trees; and the University of Bristol set out samples of the chief cider apples and much information on cider making.

In association with these exhibits representatives were eager to discuss the grower's problems and to offer up-to-date suggestions, while a full programme of lectures by eminent authorities and demonstrations on pruning fruit trees were carried out.

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LORD LAMBOURNE

President of the Royal Horticultural Society.

WE have received the following letter from Sir William Lawrence, Treasurer of the Royal Horticultural Society, and we have much pleasure in bringing it to the notice of our readers :

" SIR,—Lord Lambourne, the President of the Royal Horticultural Society, has, with characteristic *bonhomie*, acceded to the unanimous wish of his colleagues on the Council of the Society and consented to have his portrait painted. Mr. Wilfrid de Glehn, A.R.A., has been commissioned to paint the picture, which will hang in the great new hall which the Society is about to build in Westminster.

" Horticulture has never had a more devoted servant. In spite of the severest domestic bereavement and frequent ill-health, Lord Lambourne has with the greatest of courage continued to preside over the meetings of the Council and to guide its policy with mature judgment and sound commonsense ; the great and increasing success of the Society is largely due to his benevolent control.

" All lovers of gardening, whether amateurs, professionals or seedsmen, regard him with the same warm affection as do his innumerable friends in other walks of life, and I invite them one and all to unite in this commemoration and to send their subscriptions to the Chief Cashier, Royal Horticultural Society, Vincent Square, Westminster, S.W.1."

It seems that a few words regarding Lord Lambourne and his career will not come amiss at this time. As President of the Royal Horticultural Society since 1919, in which year he succeeded Lord Grenfell, he has endeared himself to all the many members through his personal charm and courtliness, and his wide and deep knowledge of all horticultural problems. It can be truly said of him that he has been born and bred in horticulture, and what he does not know about the various branches of this wide subject is scarcely worth knowing. He has always taken a keen and active interest in all the particular lines of study associated with and composing the science of horticulture, and his own garden at Bishop's Hall, near Romford, stands as testimony to his energy and thoroughness. As President he has done much to further the interests of the Society in its various spheres, and the strong position in which the Society now finds itself is in no small measure due to his untiring efforts on its behalf. He carries the honours of the Society with great ease and charm, and the more arduous duties connected with his office he fulfils promptly and with commendable understanding. We all know him as a lover of flowers and of plants and all matters pertaining to their cultivation, and that to some extent gives a clue to the high and honourable position to which he has attained in the horticultural world. We hope that the appeal which is now being made by the Treasurer of the Society will meet with a generous response from from all Fellows wherever they may be situated, for probably no other President has deserved recognition more than Lord Lambourne, whom we trust has still many years of office before him.

LORD LAMBOURNE

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SOME PLANT GROUPINGS

EVERY garden—every modern garden, at any rate—has its accidents, and these may be good or bad. They can be very bad when a peculiarly virulent form, or hybrid, of Geranium sanguineum has elected to surround with a constellation of aniline stars a very esteemed cherry-crimson variety of Potentilla nepalensis. Even more grievous is the tragedy that is now being enacted by a conflict between the trailing garlands of Tropæolum speciosum and the crimson pendants of Berberidopsis corallina. The former, being no respecter of persons, has even attacked the gentle Mitraria coccinea, but here the result is not quite so disastrous, since the mitre-flower hangs most of its soft orange-scarlet trumpets below its foliage, while the tropæolum flames like a beacon on its crown. Devoutly do we pray that the flame-flower may never envelop Pentstemon cordifolius, for that would be sheer anarchy.

On a dry, hot slope, largely occupied by encrusted saxifrages, raoulias, anthemis, achilleas and other grey-leaved things, the blue bells (of Scotland) which are most attractive in the garden in August, have become hybridised with some of the garden kinds and, springing freely from seed, do their part in converting what might have been a colourless place during the later season into a symphony in silver and pale blue.

With any of the dwarf ericas these bell-flowers, which, by the way, appear naturally in various shades of blue, are always admirable, and it was Farrer, I believe, who suggested growing them and Senecio abrotanifolius in combination. The result of such a planting as the latter has been so pleasing that one can safely proceed with "the mixture as before," but exercising rather more licence in regard to the colouring matter. A paler yellow (such as that of Anthemis tinctoria var. E. C. Buxton, for example) gives an even more charming effect with the harebell blue than the ragwort gold affords; and the same may be said of the purer, cleaner blues. Ceratostigma Willmottianum against the silver and soft chamois yellow of the silver-leaved Potentilla Vilmoriniana is a case in point. Or we may hark back to the days when Hypericum Coris and Lithospermum prostratum Heavenly Blue were flowering together, each doing its utmost to emphasise the charms of the other. Hypericum olympicum var. citrinum may be a somewhat bloodless creature when isolated, or among whites or other yellows; but let it be seen against a mass of Veronica chathamica and the transformation fills one with wonder.

DAPHNE CNEORUM IN PLEASANT ASSOCIATION WITH A FEW PLANTS OF LINUM NARBONENSE.

Perhaps one has a kind of innate regard for blues and yellows, because these colours are the component parts of the ancestral and prevailing green. Anyhow, I find myself returning to them and can never have enough of the large-flowered evening primrose (Œnothera biennis) against the lavender of Solanum crispum autumnale as seen in evening light. Clematis Lady Northcliffe in combination with the golden-leaved hop will give something of the same effect, and you will find this again in a forest of water forget-me-nots of an improved form which is contending for place and power with Mimulus luteus and choking a watercourse in the struggle. Or, taking the hint direct from nature, there is the enthralling loveliness of billows of golden gorse in an azure sea of the vernal squill; and, at the other end of the season, the rare beauty of the brassy yellow dwarf furze accompanied by the luminous sapphire of the marsh gentian.

A SUITABLE GROUPING OF HELICHRYSUM BELLIDIOIDES AND JASIONE MONTANA AS A COVER TO STONE STEPS.

A rough, rocky bank which is the home of many saxifrages of the Cotyledon and lingulata class has gradually become besprinkled with self-sown tufts of Erinus alpinus, and the effect of the latter, a haze of heather-purple beneath the tossing plumes of silvery white and crimson, is extremely lovely. A group of Montbretia rosea in a mixed border has at its back a colony of Cypella Herberti—shrimpy rose and golden buff—but the blend is rendered still more charming when Cypella platensis adds its exquisite pale Wedgwood blue.

Blue and white and a delicate interpolation of shell pink is vouchsafed along the muddy banks of a streamlet, where a large-flowered, short-stemmed form of the grass of Parnassus has for companion that entrancing little jewel, our native Campanula (Wahlenbergia) hederacea, and the clear

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rose of Anagallis tenella, the bog pimpernel. Blue, pink and white are again in unity where a rambling mass of Polygonum vaccinifolium has for next-door neighbours some pale blue willow gentians and a clump of the pure white form. This is in an open part of the woodland, where another charming effect is afforded by a mossy stump crowned by Selaginella (Lycopodium) helvetica and Linnæa borealis. The St. Helena violet creeps around the base of the stump, cyclamens appear at their seasons, and during August there is a bold clump of Deinanthe cœrulea with its exquisite, anemone-like flowers, waxen of texture and the colour of Parma violets.

A once barren and always unsatisfactory bank of poor soil has been given over to Helichrysum trinerve and the large-flowered variety of Lysimachia nummularia, both of which showed signs of being willing to take possession of the ill favoured place, and the result is good at all times. Several large bushes of Daphne Cneorum which flop over a border coping on to the grass are gradually being companioned throughout their whole length by the strays from some plants of Linum narbonense hard by. The blue of the flax is not by any means an intrusion upon the beautiful pinky crimson of the daphne: in fact, the two colours help one another, and the tall and airy stems of the linum give a gentle shade to the shrubs below which is not undesirable. Some rather raw-looking steps in the more or less wild heath garden were only planted a year ago, with Erica cinerea coccinea, Hypericum Coris, Thymus Serpyllum coccinea var. majus, and some select kinds of self-heal (prunella). These, with the help of Jasione montana, Helichrysum bellidioides, some galiums and other pretty natives which have cropped up, are already almost clothed with as cheerful a mixture of purple and gold, crimson, blue and white as one could desire, the very informality, including the licence given to the wildings mentioned, tending to moderate any leaning towards a too garish effect.

For the last of these random jottings I may allude to the singular beauty of a steep retaining bank which was planted some years ago with Erica cinerea var. rosea and Rosa Wichuraiana. When the former is in bloom (from July onwards), the rose, which has threaded its way for 15–20ft. through the heath, tosses out of those cushions of rosy crimson at intervals its lovely trusses of fragrant white flowers. The charm of this dual occupation is irresistible. Moreover, the rose is as well adapted for dry, hot banks as the heath. Both are vigorous and so well able to take care of themselves that they may be left to their own sweet will for years and years and never be other than delightful. A. T. JOHNSON.

ON MICHAELMAS DAISIES—II

GOOD wine needs no bush. The Novi Belgii are mostly "good wine." The following are some of those I call especially good:

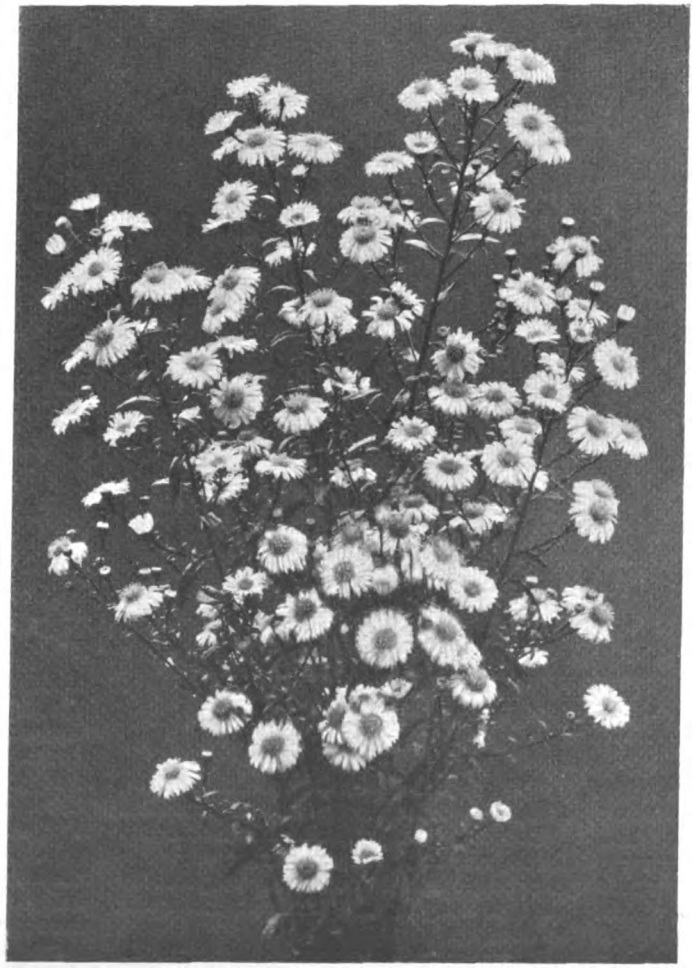
BLUE GEM.—No aster has impressed me this year as this has done. There seems to be more blue in it than in any other. And what a lovely shade! Soft, pale and alluring. I can describe my plants as 4ft. of height and 3ft. of bloom. What a laster, too! Hardly equal to Tennyson's "Brook," perhaps, but certainly of "Marathon" form. Its flowers are of medium size, and the happy mean between single blessedness and doubtful doubleness.

KING OF THE BELGIANS.—A tall one if you like. The very plant for the back of a border. The very large single flowers have several rows of orderly petals which do not encroach on the domain of the yellow centre, and which are of taking pale mauve colour distinctly suffused with pink. On the early side—Beckett's best?

BRUSSELS is something like the King, but not so tall, later to bloom and with a blue or lavender suffusion.

WALKDEN'S PINK.—A northerner, I believe. Introduced by Messrs. Dickson and Robinson of Manchester, who, as regards Michaelmas daisies, are the H. J. Jones of the north. Where is the pie into which they dip for their plums? Their catalogue contains a good many varieties not to be found elsewhere. Walkden's Pink is without doubt the most beautiful early rose, "They all love Walkden." It grows 4ft. high and is very free-flowering. Dome topped.

ALDENHAM PINK.—A late-flowering counterpart of the above, but a more intense rose. Mr. Beckett very kindly sent me in the spring one of his very latest roses to try. It is called Mermaid. The new-comer is no improvement in colour, but its individual flowers are a trifle larger. In my opinion Mermaid's special charm is its comparatively loose habit. We do not want all dome heads to our Novi Belgii. A certain number are all right, but enough is as good as a feast. The plants of loose habit, like Perry's Pink and Beckett's King of the Belgians, are usually preferred by visitors. I find I am getting into the old-fashioned way of naming. Nothing simpler has ever been invented. When schoolmaster Thomas Hogg wrote about florists' flowers in the early eighteen hundreds it did not matter how many Lord Nelsons there were. Barefield, Brown, Wood and Bates all had one, but I must own it was a little perplexing if it was not made clear if the name belonged to a scarlet bizarre or a scarlet flake.



ASTER PHYLLIS, OF FINE FEATHERY HABIT.

RED STAR, from Dickson and Robinson, is a singularly attractive plant, tall and of loose habit, and with deep rose flowers which are individually larger than most roses. It grows about 5ft. high. A fine novelty.

ELSA.—So beautiful that it almost reconciles me to doubles. I have seen it described as a "bright rosy lavender." I would rather say a soft lavender-rose. The rose colour is the dominant. The flowers are of good size and last well, changing from double to semi-double with age.

CATTLEYA is a smaller and paler edition of Elsa. It is not a bad thing and many visitors go for it; but, personally, I never can acclimatise myself to the want of a yellow centre.

MARGARET BALLARD.—Miss Peggy rightly put her foot down and said she must have a better thing than Peggy

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Ballard named after her. I agreed with the lady. She has now got as her namesake a splendid double, deeper in colour than Elsa, equally as large, and quite its equal in every way. It has only just appeared in Mr. Ballard's list.

PHYLLIS.—All the varieties that I have seen which come from Mr. T. Bones are distinguished by their beautiful clear pale yellow centres. This trait appeals to me, for I cannot help feeling that a blurred centre does not look as well as a clean cut one. This same centre appears in his Perle Brilliant, which is much taller and carries its branches in a light separated way peculiar to itself. Both a pale helio. One special characteristic of Phyllis is its earliness. This and the rich lavender Lavender are the bell-wethers of the Novi-Belgii.

FREEDOM is a 1925 introduction and is a fine example of a tall-growing mid-season Michaelmas daisy. It has large clean-cut, deep rich helio blooms and a nice loose habit of growth.

QUEEN OF COLWALL.—I bracket this with King of the Belgians and Freedom as being three tall-growing mauve varieties which are very hard to beat. They are all mid-season and could be planted with every confidence to bloom at the same time. The Queen has those peculiar narrow ray petals with the ends all pointing one way as if the whole flower was being turned on a wheel, which are characteristic of many of Mr. Ballard's. It is rather a fair weather flower; heavy showers or long-continued fine rain give it a distressed and woebegone look. It is not, however, nearly as sensitive in this respect as Grey Lady. It is a great pity this last named suffers as it does in wet weather. It is a large taking flower of delightful opal grey colouring, but its long ray florets are its undoing. Hence when we plant it we must be prepared to take the risk of a wet autumn.

I think anyone getting any of the daisies named above will agree with me that one and all are well worth growing. JOSEPH JACOB.

A SELECTION OF HONEYSUCKLES

ONE or two species of the genus lonicera are to be seen in almost every garden, however tiny it may be, but the full value of the honeysuckles has not yet been realised by the majority of gardeners. There are at least one hundred species now in cultivation, many of which are eminently desirable plants either for the sake of their beautiful flowers, their delicious fragrance, their attractive berries or their neat evergreen habit. Most of them are very hardy and easily grown in any reasonably good soil. All are readily propagated by cuttings, layers or seed. The climbing species of the Periclymenum group are the most valuable garden plants, but a few of the shrubby species are very important also. The two winter-flowering honeysuckles (LL. fragrantissima and Standishii) belong to the latter group, and are indispensable plants where winter flowers are appreciated. L. nitida represents a totally distinct type of box-like evergreen, and is now being largely planted as a hedge plant, for which purpose it is well suited. Many of the shrubby honeysuckles introduced from China in recent years are not sufficiently showy to become useful garden plants, but the following selection consists of the finest members of the genus:

LONICERA CAPRIFOLIUM.—One of the first climbing species to flower and a very desirable honeysuckle. It is a strong grower and may be at once distinguished from L. Periclymenum varieties by the uppermost pairs of leaves being united at their bases. The young shoots are very liable to attack by aphides and require attention in early spring to avoid damage.

L. CILIOSA is a scarce but beautiful climber, bearing large clusters of rich yellow flowers. It blooms about June, and hails from north-western America.

L. DEFLEXICALYX is a handsome Chinese shrub, not very showy, but of very elegant habit and a good thing to plant by itself in rough grass where it has space to develop.

L. ETRUSCA, sometimes listed as L. gigantea superba, is one of the very best climbing plants that one could desire—at any rate, in the milder parts of the country. Being a native of the Mediterranean region, it is, naturally, less hardy than our native honeysuckle. It is a deciduous species, but produces its very downy young leaves so early in the year that it may almost be regarded as evergreen for gardening purposes. Once established, L. etrusca makes rapid headway, and soon covers an old apple tree or worthless conifer. The flowers, which vary in the depth of yellow according to their age, are borne in immense sprays and remain in beauty for many weeks in summer. They are fragrant, though perhaps less strongly scented than the commoner species.

THE PINK AND YELLOW FLOWERS OF L. HECKROTTI, A FINE HYBRID OF AMERICAN ORIGIN.

L. FRAGRANTISSIMA is the winter honeysuckle *par excellence*, and is frequently confused in nurseries with L. Standishii. The former species is the more vigorous-growing bush and retains its foliage in most winters and bears rather larger and more intensely fragrant flowers. L. Standishii, on the other hand, has the advantage of flowering more abundantly, and does not seem to require such a thorough ripening of the wood to ensure a lavish crop of bloom. Both species begin to flower about Christmas in the south of England and continue until early spring. In cold districts they can be grown against a sunny wall, in which position the less vigorous L. Standishii would probably be the more successful.

L. HECKROTTI is a fine hybrid from the United States which forms a loose habited bush with pink and yellow flowers of great beauty. It apparently appreciates a very thorough ripening of its wood, and in cold, dull seasons does not do itself justice.

L. HENRYI is a slender, free-growing climber, introduced from China and Tibet. It is not remarkable for its flowers, which are rather small and of a curious purplish red shade; but the blackish purple berries, which are freely borne in autumn, render the plant very attractive at that season.

L. HILDEBRANDTII is certainly the noblest of all honeysuckles, but is only to be attempted outdoors in specially favoured spots in the south-west. Its large glossy evergreen leaves are very distinct, and the immense white and yellow flowers are each as much as 6ins.

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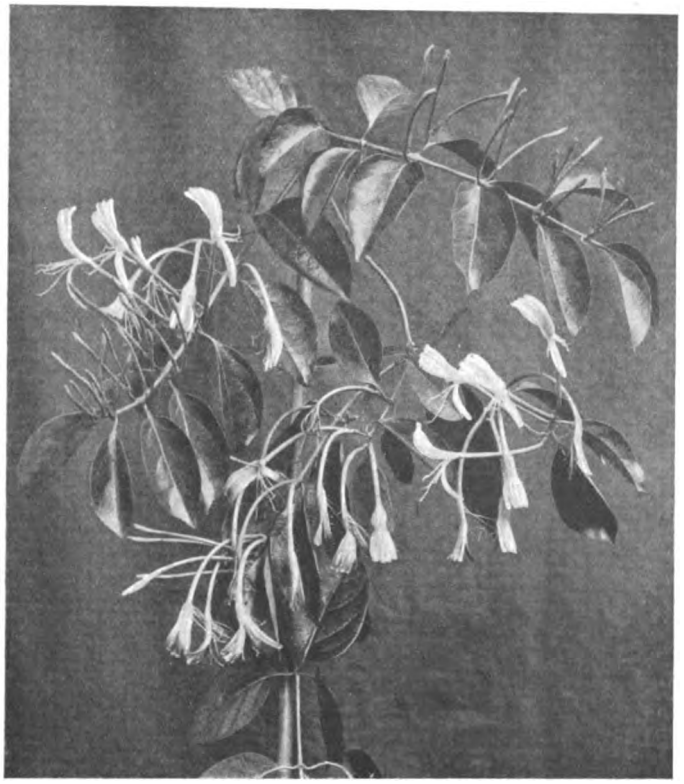
in length. This grand plant likes to ramble through other plants, as it thus receives shelter from them in times of hard weather, rather than be trained out in an isolated position on a wall. Being a native of the Shan States in Upper Burma, it is not surprising that it will only grow in our warmest districts. Unfortunately, it is one of the very few honeysuckles which are difficult to root from cuttings; a very hard callus is formed which does not readily produce roots unless carefully filed.

L. ITALICA is another grand climbing species (or probably hybrid). Although known so long ago as the time of Linnæus, it is comparatively seldom seen in present-day gardens. There are several forms of it in which the amount of purple shading on the yellow flowers varies considerably. The flowers are borne in long branching panicles and are extremely showy and fragrant. It has been confused with L. etrusca, which is said to be one of its parents, L. Caprifolium being the other.



THE NOBLEST OF ALL THE HONEYSUCKLES, L. HILDEBRANDTII.

L. JAPONICA.—This is probably the most frequently planted member of the genus. It is particularly valuable for its evergreen foliage, robust climbing habit and the delicious fragrance of its flowers. In the variety HALLIANA the flowers are white, becoming yellow as they age, and the leaves are downy on each side. The variety FLEXUOSA has almost smooth leaves, and both stems and flowers are more or less purplish. There is also a golden variegated variety which is a shy bloomer and much less attractive. Owing to its powerful scent L. japonica is an excellent subject to plant outside a sitting-room window or to cover a summer-house or toolshed. Just inside the garden gate is another suitable position, where everyone who enters will be greeted by its fragrance. Once planted in good soil it requires little attention beyond an occasional thinning out of old wood and tidying up of straggling shoots. It will take care of itself on a rough bank, and layer its own stems as it rambles along.

L. MAACKII is a handsome deciduous bush honeysuckle from Manchuria, especially fine in the Chinese variety podocarpa. Like most of the shrubby species, it requires plenty of space to develop its natural habit. The bush honeysuckles are not suitable subjects for a crowded shrubbery, but are ideal for rough grassy positions.

L. NITIDA belongs to a very distinct section of the genus, sometimes even given generic rank under the name of Chamæcerasus. For neat garden hedges this is a valuable plant, as it stands cutting well. The flowers are inconspicuous and only faintly scented, so that one need have no scruples as regards clipping it in hard. Every shoot which touches the ground sends out roots, and it is a rapid grower, so that it will probably become as familiar in gardens as common privet. The fruit is a very pretty violet berry, but produced too sparsely to make the plant worth growing for the sake of berries.

L. PILEATA is another neat evergreen shrub, akin to L. nitida, but of dwarfer and more spreading habit, less adapted to hedge forming. Its violet berries are sometimes borne abundantly, and it is then a charming object; but as a rule they are scattered here and there over the plant and one has to search for each individual fruit.

L. PERICLYMENUM is our familiar native woodbine. Although so abundant in hedgerows throughout the country, it is always welcome in the garden in any of its varieties. The var. BELGICA has more purple in the flowers than in the common form, as also has var. SEROTINA (the late Dutch honeysuckle), which should be grown for the sake of its late-flowering habit. The bright red berries render the common honeysuckle very attractive until late in the autumn, and it is one of the first plants to burst into leaf in the early part of the year.

L. PYRENAICA is a beautiful pink-flowered dwarf bush honeysuckle, introduced as long ago as 1739, yet not by any means a familiar plant now.

L. TRANSLUCENS, according to the Kew Hand List, is a variety of L. quinquelocularis. It is a Himalayan bushy species whose charm lies in its white berries, which are translucent. It should be grown in a position where one can look up at the berries against the light and appreciate their beauty.

L. SEMPERVIRENS is the well known trumpet honeysuckle, one of the best of the twining species where it does well. It is a good plant for a wall or for growing on a tree in a mild district. I have seen it flourishing on an arch at a railway station in north Worcestershire. The tubular scarlet flowers lack fragrance, but are very handsome and unlike other species of the genus.

L. SYRINGANTHA, on the other hand, is a strong-growing, shrubby plant with pale lilac small flowers with a very decided fragrance. There are forms of this species in cultivation which have only faintly scented blossoms, so that it is important to select a plant raised from a really good form.

L. TRAGOPHYLLA is one of the best of the Chinese climbing honeysuckles. The scentless flowers are fully 3ins. long and are borne in large clusters at the end of the shoots. They are rich yellow in colour and very showy.

N. G. HADDEN.

THE USE OF ESPALIERS FOR GARDEN FRUIT

THE system of training fruit trees on espalier fences or to the shape known as the espalier is a very old one. Hitt, in his book "A Treatise of Fruit Trees," 1757, strongly recommended the system.

At the present time apples and pears are trained to this shape much more than any other kind of fruit though plum and cherry trees can be so shaped. It is a little surprising to us now to find Hitt recommending such fruits as mulberries, quinces and filberts for this method. Referring to mulberries, he wrote: "it produces much better fruit when planted in espaliers than from tall standards." The surprise is not the production of finer fruit, which is generally expected from a trained tree, but as one is accustomed to seeing mulberries only as fine old standard specimens, the idea of espaliers had not occurred, to me at any rate.

There are several reasons to advance in favour of the espalier tree, especially for small and medium size gardens, and there is no objection to it in the largest garden.

Where the fruit is to be grown in the kitchen garden, as it generally is, except in large establishments where a separate fruit garden is often provided, the espalier fence can be strongly recommended. It occupies very little space, and the shade

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it casts is not detrimental in any noticeable degree to other crops, especially as it is almost invariably used to border the central walk although occasionally set back to act as a background to a flower border. When used in the latter way flowers should not be allowed near enough to shade the trees or to prevent the necessary attention being given to them.

If properly attended to from the start, espalier-trained trees will carry a lot of fruit of fine size and quality—this being largely due to each branch getting a full share of sun, light and air—and the fruit is seldom damaged by winds. The trees are also easily attended to. An espalier fence when the trees are in bloom or fruit is exceedingly attractive. On occasions it makes a useful and profitable dividing screen between the ornamental grounds and kitchen garden crops.

Espalier trees may be supported in various ways. Occasionally, for a few years after planting, a similar but extended form of nursery training is practised by means of upright stakes, to which are fastened smaller stakes or bamboo canes for the branches. This is not to be recommended, as it is not easy to train the trees properly, and the posts, possessing little durability have to be renewed, and in doing so the roots are likely to get damaged.

Where possible a fence should be erected in the first place. Strong supports are required at each end for straining the wires to; these posts can be of iron or wood. If the latter, oak is best. Posts 7ft. or 8 ft. long for a four-tier or five-tier fence, respectively, should be chosen. Two feet of this should be dressed with a preservative for letting into the ground. A useful size would be 5in. by 2½in. for a five-tier, but less strong would do for the lower fence. Smaller section intermediary posts could be used, or, if desired, flat iron posts with anchor feet such as are used for iron fencing would be quite suitable. If the posts are to be entirely of iron, the end ones should be of strong angle iron with anchor feet and stays to bear the strain of tightening the wires. The bottom wire should be set 18ins. from the ground level and the others at 1ft. apart, though 9ins. would be sufficient for plums and cherries.

The main point about the successful culture of espalier trees is the training and pruning. Unless this is skilfully attended to from the maiden tree upwards, the result is likely to be disappointing. It is, unfortunately, a fact that the latter is often the case. The sight is all too frequent of masses of strong shoots springing from the topmost layers, and with each annual pruning the trouble is accentuated. Having formed the tree, a perfect balance between root, branch and fruit-buds must be aimed at. To obtain this the flow of sap must be equalised in all parts of the tree, and this is largely done by pruning: summer, winter and root pruning each playing a part. When making the tree, of whatever kind of fruit, vigorous lower branches should be aimed at.

Trees with five tiers fully formed can sometimes be purchased from nurserymen who specialise in fruit trees, but the average sale tree is one with two or three pairs of branches. Since it takes a year to form each pair after the "maiden" stage, or about three and a half years from budding, to make a tree with two pairs of branches, the size naturally governs the price.

The training of plum and cherry trees into espaliers is slightly different from that of the apple and pear, inasmuch as it is advisable to allow each branch to take an upward course for a few inches before gradually bending it into its horizontal position.

The espalier-trained tree is also suitable for walls, and one frequently finds a fine old pear tree occupying the end of a house.

When planting, the distance between the trees must be partly governed by the length of space to be eventually filled; for instance, strong-growing varieties of apples and pears may be planted at 18ft. apart, but if the length to be covered is only 30ft. or even 24ft., this would take two trees of more moderate growth. In this connection the question of stock on which the tree is worked should be considered. It is possible, in the case of apples and pears, to buy trees worked on stocks the root systems of which influence the growth in varying degrees. In the case of plums, there is not the same choice, but possibly trees budded on the St. Julien stock would be best for espaliers. ARTHUR J. COBB.

APPLES AND PEARS FOR THE SMALL GARDEN

THE claims upon the limited space in the small garden are many, yet there are few gardens so cramped that space enough cannot be found to grow a judicious selection of suitably trained apple and pear trees.

With the important interests of neighbouring flower-beds, vegetable rows and the like to consider, the cumbersome and shade-giving standard trees of rambling root-run are out of the question, and for his choice the prospective planter should turn to the compact bush or pyramid trees or trim-growing espaliers and cordons.

Combining ease of management with economy of space, these handy-sized trees commence to bear at an early age, are distinctly prolific and produce fruit of excellent quality. The trained espaliers and cordons are especially well adapted for planting where space is restricted, for they take up very little room indeed and, planted against the house side, the garden wall or fence, or trained along the pathsides and borders, they will in no way interfere with crops in adjoining beds. Also, well trained trees are extremely decorative and in the utility garden might well displace the unproductive creepers and ramblers on wall or fence of almost any aspect.

The choosing of varieties to plant is a most important item. There are many points to weigh carefully, for many varieties of high culinary or dessert value are quite unsuitable for growing as dwarf trees in the small garden. Those rampant growers of untidy habit, along with those of doubtful quality and the notoriously shy croppers, should be passed over in favour of neat-growing and sure-cropping varieties of first-rate quality.

The varieties, with their season, mentioned in the following short lists will, if well cared for, conform to these requirements and provide a succession of fine fruit over a long period. That the lists might be considerably added to goes without saying, and no doubt many folk will find their "favourite" missing. However, those listed represent a select few of the several excellent varieties available. All are of sterling quality and have proved admirable for growing in the small garden.

APPLES.

For Dessert.

St. Everard, September; James Grieve, September–October; Egremont Russet, November: Cox's Orange Pippin, November–December; Christmas Pearmain, December–January; Laxton's Superb, December–March.

For Culinary Use.

Lord Grosvenor, July–August; Rev. W. Wilks, September–October; Lane's Prince Albert, November–March; Edward VII, January–April.

PEARS.

For Dessert.

Doyenne d'Eté, July; Laxton's Superb, August; Souvenir de Congrès, September; Louise Bonne of Jersey, October; Durondeau, October–November; Beurré Superfin, October–November; Conference, November; Beurré Six, December.

For Stewing.

Bellissime d'Hiver, until March; Catillac, December–April.

Generally, pears are not nearly so accommodating as apples, and unless it is known they thrive in the locality, they should be planted rather sparingly. In bleak gardens they should be grown as espaliers or cordons against a sunny wall or fence, or in a sheltered spot in the open garden where they do best as pyramid trees.

The planter should note that most varieties of these fruits are unable to set good crops, no matter how freely the trees blossom, unless their flowers are pollinated with pollen from *another* variety of apple or pear, as the case may be. For this reason it is bad policy to plant a solitary tree or several trees of one variety alone in the garden. Two or three varieties should be planted

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so that flowering times overlap and cross-pollination and good fruit setting are assured.

These small garden trees should be obtained on dwarfing root-stocks, which will check exuberant growth, simplify the pruning operations and encourage early cropping. The cordon apple trees will be best on the markedly dwarfing Jaune de Metz Paradise and the espalier and small bush trees on the Doucin Paradise; or, if the garden soil is poor, on the more vigorous English Broadleaf Paradise. The pear trees should be on the Angers quince stock.

The spacing of the trees at planting time has a decided bearing upon their ultimate success or failure. With no room to spare there is often a tendency to huddle the trees together, which is a grave mistake. Seldom, if ever, should bush or pyramid trees be set less than 10ft. apart each way, each espalier should be allowed some 12ft. or more of wall space and the cordons from 2ft. to 5ft., according to the number of branches. Neither must fruit trees be planted too close to a privet hedge or to big forest trees, otherwise the competition for sunlight and root-run will be decidedly one-sided.

No elaborate preparation for planting is necessary when the garden soil has been well cultivated for several years, and beyond a deep digging in autumn, little further attention will be necessary in most cases. A moderate dressing of farmyard manure may be applied if the soil is light and "hungry," this being dug in some time before planting. Waterlogged ground must, of course, be drained and any shortage of lime made good without delay.

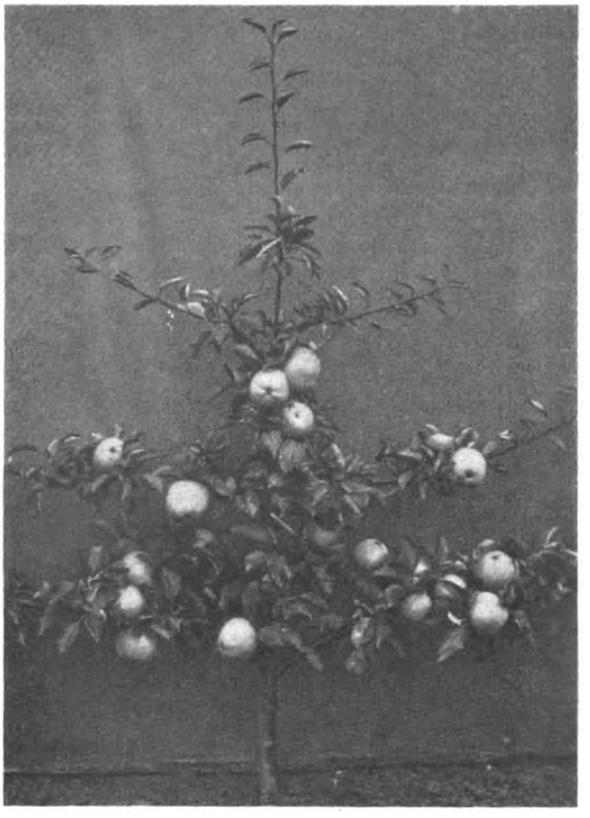
At planting time the important points to observe are: (1) To dig out the hole wide enough to take the outspread roots without cramping; (2) to avoid planting too deeply, the right depth being gauged by the old soil mark on the stem, which is the depth to set the tree now, or by the union of stock and scion, which should be just below the surface when planting is finished; and (3) to plant *firmly*. Manure ought to be kept away from the roots at planting time, but a "poultice" of rotted dung may be laid on the soil round the tree in early spring.

Unless their early shaping and training will be in skilled hands, it is not wise to purchase "maiden" or one year old trees for planting. Shapeliness and good form in after years will depend upon the quality of the knifework in the first few years, and it is better that this should be left to the experienced nursery hand.

When three or four years old the framework of branches will be well and truly laid, and at this age the bush, pyramid and espalier trees are best for planting in the garden. So simple is the training of single cordon trees, however, that these may be planted at two years old.

The pruning of the trees in after years is work of the highest importance, the aim being to regulate the shape and form of the tree, to restrict young growths so that short fruiting spurs are made along the branches and stems, and to remove dead and unhealthy wood. Both summer and winter pruning should be practised *every* year.

In late July each year the young side shoots on the apple and pear trees should be pinched back to four or five leaves from their base, but the leaders must on no account be shortened at this season.



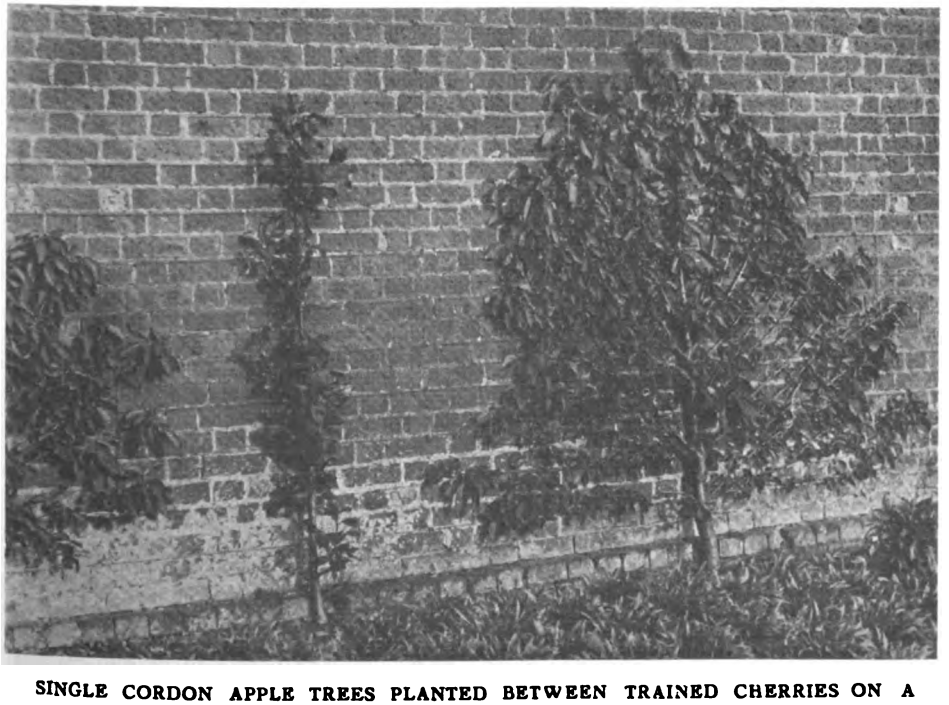
A WELL-TRAINED YOUNG ESPALIER APPLE TREE.

The winter pruning, best done after leaf-fall, is briefly as follows: With cordon and espalier trees of both apple and pear the plan is to cut back the young side shoots—shortened to four leaves or so in summer—to two basal buds. The leading or extension shoot of the cordon and the leader of each espalier branch should be shortened but slightly.

The branches in the bush apple tree should be kept evenly spaced round the top of the short main stem and the centre kept open and free from crossing growths. Side shoots should be cut back to two or three bottom buds, with the exception of those weakly growths that were not long enough to summer prune and are now no more than 5ins. long, which may be left untouched. The leading shoot of each branch should be shortened by about one-third, or by as much as half if growth is weakly.

The pyramid pear tree has no open centre, of course, there being a main central stem from which the tiers of side branches arise. The young side shoots from these should all be cut back to within two buds of their base and the leading shoot of each branch shortened by about one-third. As the trees age care should be taken to thin the crowded spurs and to shorten those becoming long and much branched. A dressing of basic slag at the rate of 4 oz. to 6 oz. to the square yard, applied in the autumn at intervals of a couple of years or so, will prove a decided help to cropping trees, while an occasional application of sulphate of potash in the month of February at the rate of 2 oz. to 3 oz. to the square yard may also be advisable.

ALAN A. RAWES.



SINGLE CORDON APPLE TREES PLANTED BETWEEN TRAINED CHERRIES ON A WALL. NO WALL SPACE SHOULD BE WASTED IN A SMALL GARDEN.

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NOTES OF THE WEEK

BOX EDGING IN SMALL GARDENS.

THIS is the season of the year when many hardy shrubs change hands, among them being the box. Usually, I think, this is planted because it makes a neat edging, and, comparatively, is of slow growth, necessitating little after attention. For this reason one notices its introduction into small and moderate-sized gardens, where room is limited. It gives a finished surround to a bed, and, in certain districts, where flagged paths are favoured, it is becoming popular on either side of the walk. Large consignments arrive in this country during November and December from Holland, and these include specimen box, standards and otherwise, as well as plants suitable for edging. Skirting a garden path, box gives to a place a formal, old-fashioned appearance, which to-day at any rate is increasingly popular, and for a year or two all goes well. Once it becomes established, however, and its roots spread, trouble begins with other occupants. One has evidence of this in borders where hardy plants are located, and in beds of roses, where the unfortunate choice of a surround has been that of box. Surely if strangulation of rose trees were desired, one could not fix upon anything that would do its work quicker! How anyone having a love for roses, can endanger them by planting box as an edging, or, indeed, anywhere near them, passes my comprehension. If one must have an edging, then choose the least harmful—violas, for example—that, unlike the spreading roots of box, do not suck the soil's fertility.—CLAREMONT.

RHUS COTINOIDES.

SO much is heard nowadays of the beauties of Rhus Cotinus, with its colouring qualities and its extraordinary filmy inflorescence that gains for it its name of smoke plant, that the beauties of its close relative Rhus cotinoides are hardly ever mentioned, and yet in some respects the latter is an even more desirable plant. While R. Cotinus is an inhabitant of southern Europe, R. cotinoides is a North American species and is rare in the wild state. These two species are the only members of the genus with entire leaves, and, whereas R. Cotinus is noted for its inflorescence, R. cotinoides is a sparse flowerer and is also dioecious.

Rhus cotinoides was discovered in 1819 by Nuttall in the south-eastern United States, but was not introduced into this country until 1882, a long lapse of time between discovery and introduction for such an important plant. It is much more arborescent in its habit than its cousin, and herein lies one of its advantages, for R. Cotinus, in a locality to its liking, is inclined to grow out of hand and to become a great mass without much individuality of outline. Oddly enough, R. cotinoides is not mentioned by Professor Sargent in his Manual of Trees of North America among the sumachs which may take an arborescent form; the accompanying illustration clearly shows the tree-like growth of the specimen at Kew. Its ovate leaves have a curious translucent character that catches every ray of sunshine and enriches the colour, which is near to a blood-orange. It will grow in any soil, but probably the poorer the quality the more it will colour. Like many trees and shrubs with a large pith, it is difficult to strike from cuttings, but it is possible, if small cuttings are taken on the young side. This valuable shrub is now obtainable in the trade.—E. C.

ONE OF THE FINEST AUTUMN COLOURERS, RHUS COTINOIDES.

VIRGINIAN STOCKS IN THE ROCK GARDEN.

THAT old-fashioned annual the Virginian stock (Malcomia maritima) is one of the hardiest plants of the garden. For very early blooming it is a good plan to sow in the autumn a little seed here and there in the more sunny parts of the rock garden. Seed sown in the fall results in compact masses of plants which are crowded with bloom. These are always superior to those which come up from seed sown in the spring-time. The Virginian stock thrives best in a light soil and, if this is quite shallow, so much the greater is the chance of quick results. If the winter is fairly mild, the little plants start blossoming in February and will liven up the rock garden in a most pleasing manner. Packets of mixed seeds from reliable firms yield a fine range of attractive colours which will surprise those who have hardly thought the Virginian stock to be worth growing. The little plant is also most useful for inserting in crevices on old walls where it will continue to resow itself for an indefinite period.—S. LEONARD BASTIN, *Bournemouth*.

COLLETIAS.

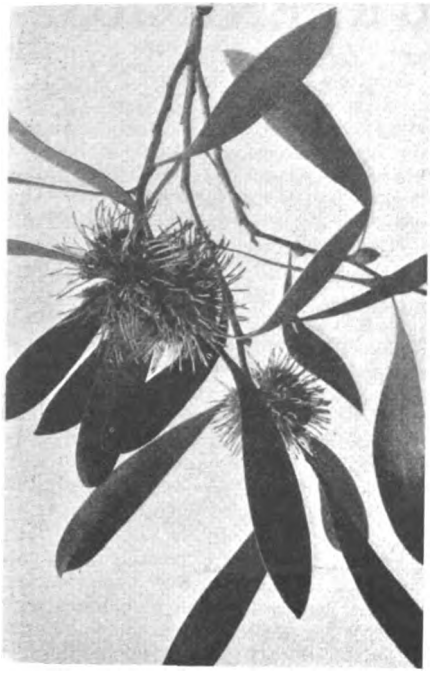
FEW more distinctive plants are to be found than the Chilian colletias. Most of the species seem to be hardy save, perhaps, in the more northerly parts of Britain. The colletias have spiny branches that are naked or, at the most, bear a few minute leaves. Perhaps the most striking is C. cruciata, the whole bush being densely covered with great curved spines placed one above the other. The plant makes a bush about 4ft. in height and it is an object of interest all the year round. Another species, C. spinosa, has an abundance of awl-shaped spines and, in the summer, is really very pretty owing to the profusion of small white flowers which it produces. Another free-flowering colletia is C. serratifolia, which, when in bloom, is a mass of silvery white blossoms. All the colletias make excellent hedges, and a barrier produced in this way is about as formidable as anything one could imagine. The colletias will grow in almost any soil, but they are much quicker in development on rather light, sandy ground. Increase is easily carried out by means of half-ripened shoots put in a close frame, preferably in the spring.—L. B.

A POPULAR EVERGREEN FLOWERING SHRUB.

WHEN, in the gardens along the shores of the Mediterranean, the autumnal rains end the prolonged summer drought and rest, and the evergreen vegetation starts with renewed activity, there is no other shrub whose flowers can rival those of Hakea laurina. They form little balls about 2½ins. across, yellow at first, but soon changing to pretty crimson, from which the pale or golden yellow long styles radiate in all directions. These flower balls are produced from the leaf axils of last year's growth on the thin, flexible and mostly drooping branches. They are a strange and fascinating sight to everybody who sees them for the first time, and as these flowers last for some time and stand shipment well, they are now grown more and more for export.

Hakea laurina or H. eucalyptoides, under which name it is generally known in gardens, is no doubt the best and showiest species introduced of this large genus. It forms a shrub 15–20ft. high, or even a small tree, with an upright and pyramidal growth, when placed isolated and left alone. Its slender virgate and pendulous branches and all the young leaves are densely covered with a fine silky felt of a metallic hue. The leaves are hard and coriaceous, oblanceolate with a blunt point and tapering towards the base, 4–6ins. long and ½–1in. wide with 3–7 parallel veins.

Unlike some of the proteaceous plants, it is not very particular as to soil. It will succeed in the stiffest and hardest limy soil, but at first it is a good plan to add some leaf-mould and sand and to keep the young plants



THE CRIMSON BALLS OF HAKEA LAURINA.

moderately moist until they are perfectly established. They will then take care of themselves and withstand the hot and dry summers, and flower abundantly every year from November to February, but especially in the autumn.

The propagation is best effected by seeds, which are produced freely, though not abundantly. The fruits are ovoid, short-beaked, wooden capsules about 1¼ins. long, with two thick valves opening when perfectly ripe and dry. They contain but two compressed seeds with very thin large black wings. These seeds should be sown in spring singly in small pots in sandy peaty soil, as the seedlings do not easily transplant. The best time for putting the young plants in their final place is the early autumn, so that the roots can get firm hold in the soil before the following summer with its dangerously long drought.

H. laurina will easily grow as a greenhouse plant and also flower, but it will never be what it is out-of-doors in southern gardens. There it is, no doubt, one of the most beautiful and popular flowering shrubs, and next to the gorgeous Dahlia imperialis, which flowers at about the same time, it is one of the glories of the sunny and mild November days on the Mediterranean.—ALWIN BERGER.

THE CLARET COLOURED MECONOPSIS NEPALENSIS.

COREOPSIS VERTICILLATA.

SOME of the coreopsis, or tickseeds, are not so hardy everywhere as one would like them to be; but one of the least grown of the genus is not only hardy, but very beautiful indeed. This is Coreopsis verticillata, the whorled tickseed, which has both attractive flowers and exceedingly pleasing whorled foliage on slender, graceful stems. It is of dwarf habit, generally from 12ins. to 15ins. or 18ins. high. I know a plant of this which has been in the same garden for between twenty and thirty years and which is as fine as ever and has only received the ordinary treatment of the border in the way of occasional lifting, manuring and replanting. It is pleasant every autumn, with its charming green leaves and its moderate sized bright yellow flowers. It will grow well in any border on ordinarily good garden soil, preferring one which is not too heavy.—S. ARNOTT.

MECONOPSIS NEPALENSIS.

THE enclosed photograph shows a meconopsis which flowered in my garden in Perthshire this summer under the name of M. nepalensis. It grows about 4½ft. high. The foliage of this species is somewhat like M. Wallichii, but the hairs on the leaves are more silvery. The flowers have four petals like M. Wallichii, but are quite a different shape and colour. In shape the flowers somewhat resemble those of M. paniculata, but are even more tubular, and quite a different shape from those of M. Wallichii, as shown by the illustration. The flowers are claret colour, being quite different in colour from any other meconopsis I know. It comes into flower in early July, and is still showing flowers at the foot of the stem at this date—the end of September. The stem leaves are much more numerous than M. Wallichii. A curious thing I notice about the petals is that they do not fall off so readily as in other species, but fade on the seed capsule, and unless picked off are apt to rot the seed capsule. The seed capsules have very dark brown hairs, quite different from those on M. paniculata, which are pale yellow.—A. HARLEY.

[*In his revision of this genus Dr. Stapf named this plant as M. Wallichii var. fusco-purpurea. In the opinion of some authorities, however, the differences between the two plants are such as to warrant the retention of the specific name of M. nepalensis.*—ED.]

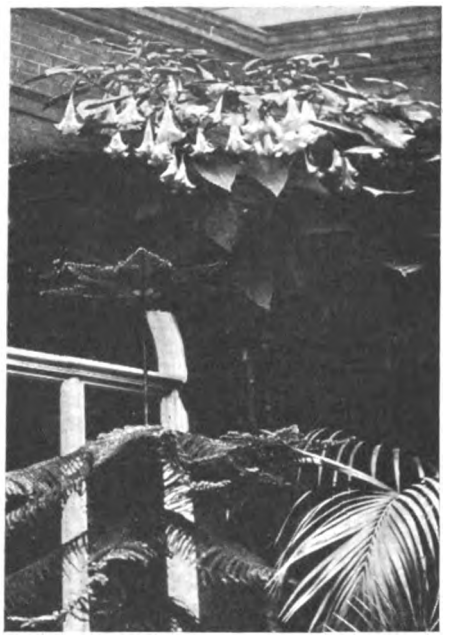
THE TRUMPET FLOWERS.

WHOEVER desires to raise his or her garden or glasshouse far above the commonplace should give consideration to the brugmansia, for while there are many imposing and gorgeous blooms to give colour and depth to our flower borders, a subject like the trumpet flower, ranking with the lily and magnolia in chaste and delicate appearance, will impart added dignity and gracefulness to the bed or border outside and the glasshouse interior, especially the conservatory or glass porch, if admitted into the general scheme of things floral.

Usually raised from cuttings, which readily strike in a moderate heat, the brugmansia progresses very well, and roots strongly, but so many fail to bring the rooted cuttings to flowering maturity. The soft-wooded stem so easily rots if given indifferent treatment, and one can even bring the plant through a whole season and then lose it by over-dampness or exposure.

If care is taken in the early stages, this will not happen. The young shrub should be grown near the glass and in a moderate temperature; in fact, it should be grown outdoors as much as possible, without in any way exposing it to very wet or cold weather, during summer and autumn, and the wood should receive as thorough a ripening outdoors as the state of the weather will permit—as late into the autumn as possible.

Culture consists first in potting in a firm soil—fibrous loam, leaf-mould, well rotted manure, coarse sand—and an occasional re-potting. When a shrub from a rooted cutting shows signs of establishment, it should be closely pruned and then re-potted as soon as the shoots begin to grow; if the stems are lightly syringed new shoots will soon appear. The pruning should always be done in the spring, before March comes to an end. Yearly treatment of this sort



A FINE SPECIMEN OF BRUGMANSIA, ADMIRABLY SITUATED.

soon brings the plant into flowering condition, and once this is attained, the brugmansia may be planted in the greenhouse or conservatory border as a permanent occupant or it may be used for summer bedding out of doors.

Properly treated, brugmansias will give two crops of flowers—one in midsummer and another in mid-autumn. Planted in the conservatory border, they will, as years go by, mount up well into the glass roof and almost hide the spot with scores of enormous white trumpets, as the accompanying illustration shows; or, kept to pots, will provide a yearly show of ornamental flowers for garden decoration. A pot containing one of these beautiful shrubs forms a most artistic and handsome object standing on steps leading to the house door, or upon a verandah or terrace. Even its large, light green leaves, without the flowers, are not to be despised as a decorative item, rivalling many an evergreen shrub that is used for this purpose. Once the plant is well established it will withstand even neglect and rough treatment, and will flourish during a spell of indifferent weather, although its blossoms suffer sadly; on this account it is best treated as a pot plant, and therefore movable, when wanted for outdoor use.—H. A. DAY.

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NEGLECTED PLANTS FOR THE GREENHOUSE

IXIAS, of which there are so many beautiful varieties, are deserving of more general cultivation. They were at one time commonly grown in gardens, but at the present day I have met many young gardeners who have never seen an ixia. Their neglect is rather suprising, considering their cheapness, ease of cultivation and their usefulness for general decorative purposes. With their light graceful sprays they are ideal for table decoration. Their colours range from white through varying shades of pink, rose, red and yellow, and the beautiful green-flowered species I. viridiflora always attract attention.

Most of the ixias in cultivation at the present day are garden forms, which are sold under varietal names. Ixias for pot culture should be potted up during autumn. Six or eight corms should be placed in a 5in. pot, using a fairly light loam with the addition of some well decayed leaf-soil and clean coarse sand. The compost should be made moderately firm and the corms covered with about 1in. of soil. The pots should be stood in a cold frame, but it is better not to cover them with ashes, as some writers advise. They may remain in the cold frames until spring, when they require more head room, and should then be placed in a cool, airy greenhouse. They require cool greenhouse treatment during all stages of their cultivation, with ample ventilation on all favourable occasions, taking care, of course, to avoid draughts. After flowering, they should be gradually dried off; in fact, treated in the same way as freesias. They are propagated by means of offsets and also by seed. The seedlings take about three years to attain flowering size. The plants are so cheap, however, that most cultivators, unless they wish to make a hobby of them, will find it best to purchase fresh stock each year.

In the south and west ixias are quite hardy outdoors when planted in warm, dry and sunny borders in front of plant houses and in such-like situations. Indeed, in many places where the soil is light and warm they do well in beds in the open provided the situation is sheltered. When grown outdoors they are best planted during November. They should be planted about 6ins. deep. As a rule no protection is necessary, although it is an advantage if a thin sprinkling of straw is laid on the border, as it keeps the surface from becoming hard and caked from winter rains.

Ixias are native of South Africa, as also are the babianas, which, in common with many more beautiful South African plants, were at one time so popular in gardens, but at the present day are, for some unaccountable reason, so much neglected. This is surprising when one considers how simple their requirements are. Like ixias, they are best potted up during October, and they thrive under exactly the same conditions. They can also be grown outdoors in warm sunny borders at the foot of greenhouse walls. They are the better for a protective covering of straw, or of fibre. If so desired, planting may be deferred until February or March. There are a number of species, but very few are in cultivation at present. Some of them, like B. disticha, B. plicata and B. sambucina, are beautifully scented. Mixed varieties are still offered for sale, also the beautiful B. rubro-cyanea. This is generally regarded as being a variety of stricta. B. rubro-cyanea is indeed very beautiful, the upper part of the perianth segments being brilliant blue and the lower half a rich crimson, forming a central zone which is a wonderful contrast to the blue portion.

Tritonias, another genus of South African bulbous plants, includes some beautiful species which I am afraid are not represented in our gardens at present, but T. crocata, of which there are some fine varieties, can fortunately be obtained from dealers in choice bulbous plants. They should be given exactly the same treatment as ixias, and are best grown in 48-sized pots, placing six or eight corms in a pot. They last in flower for a long time, and also last well when cut, being very beautiful for table decoration. Alberta, Orange King and Salmon King are some of the best varieties.

Sparaxis tricolor, of which there are a number of beautiful varieties, especially the brilliant Fire King, thrive under exactly the same conditions as ixias and tritonias, and are worthy of much more general cultivation, and it is rather surprising that amateur gardeners who grow freesias, nerines and lachenalias seem to neglect the plants mentioned, for their cultural requirements are much the same, and they all do well in cold frames or cool greenhouses and thus cost little or nothing in the way of fuel. J. COUTTS.

CORRESPONDENCE

TUSSILAGO FRAGRANS.

SIR,—May I warn those of your readers who, not being acquainted with this coltsfoot, may be attracted by Mr. Bastin's description of it in his note on "Winter Flowers" (THE GARDEN, October 24th), that it is one of the most pernicious and persistent weeds that ever vexed the soul of a gardener? Some fifteen years ago I, tempted by a somewhat similar description, introduced it into my garden and I have had good reason to regret it, for it is an incorrigible encroacher; its roots will run for a great distance (hard gravel paths are no obstacles), and its huge, coarse leaves speedily overwhelm less rampant and more valuable plants. It is certainly sweet scented, but the flowers are dingy and, although it is impossible to kill the roots, the slightest touch of frost will reduce leaves and blossoms to a horrible black mass. If it must be grown, it should be planted in a sunk pot.—R. E. HEAD.

IRIS STYLOSA.

SIR,—I was interested to read in THE GARDEN for October 24th, page 601, that Iris stylosa bloomed on the 4th in a Sussex garden. I am not sure of the exact date, but about that time one of my plants had a bloom, and since then several very fine flowers have been pictured. The plants are facing south-west, against a coldhouse brick wall. There has not been any protection, ashes or anything put on their bed.—F. O. BELCHER, *Andover*.

ROSES FROM CUTTINGS.

SIR,—Your correspondent's note on the increase of roses by cuttings in the issue of THE GARDEN, October 17th, page 588, is most opportune, as this is the best season of the year to insert the cuttings. I am fully in agreement with your correspondent on the subject. At Kew we have a bed of Caroline Testout grown from cuttings taken eighteen years ago. The bushes are still full of vigour and flowering freely. In addition to the hybrid perpetuals, hybrid teas and the strong-growing teas, most of the rambling and climbing roses can be cultivated very successfully on their own roots, notably such favourites as American Pillar, Dorothy Perkins, Blush Rambler, Gloire de Dijon and William Allen Richardson. One of the great assets that roses on their own roots have is the absence of briar suckers. All the vigorous basal shoots can be retained.—A. O.

THE ZERMATT VALLEY, THE HOME OF MANY RARE ALPINES.

ERITRICHIUM NANUM.

SIR,—I have read your article on Farrers' Word Painting in the issue of October 24th with much interest. I can confirm all Farrer wrote of his day's outing in search of Eritrichium nanum, with the exception of the beauty of the flower itself, for I followed his route late in June in 1922. Our expedition was under the command of old Johan Treyer, who collects seeds for M. Correvon. After reading Farrer's description of eritrichium, I was a little disappointed when I saw it. Had I not read Farrer's

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description, I should probably have said that it was the most beautiful little plant I had ever seen. But having read it, I felt that I knew the plant too well to go into ecstasies over my first view of it.

I enclose a general photograph of the neighbourhood and also one showing Eritrichium nanum, Myosotis alpestris and also M. rupicola. I have usually found the M. alpestris inhabits the zone between 3,000ft. and 5,250ft., the height lessening and the flowers growing larger and of a deeper colour as the altitude increases. From 6,000ft. to 7,200ft. the typical M. rupicola takes its place, while eritrichium is only found over 8,000ft. This is, at any rate, the case in this particular alpine area.—ASCEL OLSENS, *Kolding, Denmark.*

RUBUS ODORATUS.

SIR,—A good companion to the above which is illustrated in THE GARDEN of October 24th, is Rubus parviflorus; I prefer it to R. odoratus. It is not quite so tall, the leaves are much larger, the flower resembles a small white rose, with petals curiously crinkled. It is a strong grower, has red fruit, and is a native of North America.—R. MOORE.

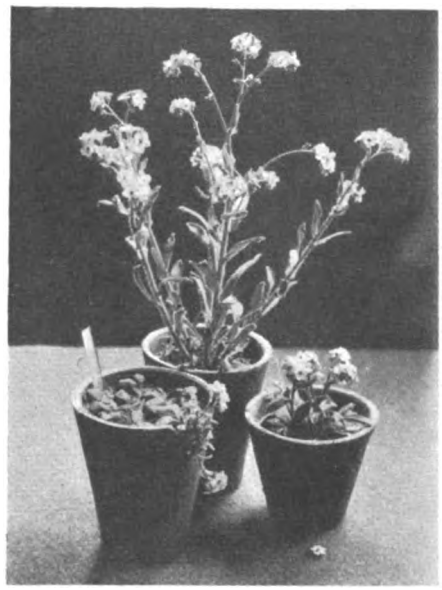
CAMPANULA CENISIA AND VIOLA CENISIA.

SIR,—In the course of correspondence with a French professor of botany I mentioned that these plants were notoriously difficult to grow in this country, and that they appeared to be definitely calcifuge. My correspondent informs me that in nature they are found in the detritus of rocks which are largely composed of calcium sulphate, from which he deduces that the plants are not really calcifuge, but merely appear to resent lime in the form of carbonate of calcium, though welcoming and apparently needing the sulphate.

If this is the case cannot some means be devised to counteract the malevolent properties of the carbonate and also furnish an explanation?—PURLEY.

COLOUR AND CATALOGUES.

SIR,—May I add a suggestion to the above subject? Would not definitions of colour terms from colour standards and nomenclatures of Ridgway give all the charts, named and numbered, that would be needed? I have seen it used by entomologists when classifying new specimens. I remember it as a book of convenient size, containing innumerable coloured plates of every conceivable shade and tint of every colour of the spectrum.—S. C. HARDING.



ERITRICHIUM NANUM IN COMPANY WITH MYOSOTIS ALPESTRIS AND M. RUPICOLA.

A FINE COLOURED CHERRY.

SIR,—I do not think I have seen any mention of the splendid autumn colouring of that beautiful tree, Prunus serrulata var. sachalinensis, sometimes called P. Sargentii. At the moment it is the loveliest bit of colour in this garden, every leaf a vivid translucent rose.—E. HUNTINGFIELD.

COLOUR NOMENCLATURE.

SIR,—Like "An Italian Reader," I, too, was greatly interested by what the Editor had to say concerning colour nomenclature. I should like, however, to reassure the writer from Italy by pointing out to him or her the following, as an example of what is beginning to be done now in English catalogues (and in a few American ones as well) from the list of Mr. Clarence Elliott of Stevenage.

"List of Plants with Blue Flowers, Alpine and Herbaceous. In this list by blue we mean blue, powder blue, sapphire blue, not violets and mauves."—(Mrs.) FRANCIS KING, *Michigan, U.S.A.*

OUR NATIONAL FLOWER.

SIR,—The Editor's note in your issue of October 17th on the rose tempts one to ask why was the rose selected for England's national flower? for within a day or two we have a bud, flower and a shattered bloom. It is true some varieties last longer than others, we also must admit that the rose is very popular, yet—

"Look to the Rose that blows about us—'Lo, Laughing,' she says, 'into the world I blow:
At once the silken Tassel of my Purse
Tear, and its treasure on the garden throw.'"

On the other hand, we have other popular old English garden flowers which last a week or two when cut; take, for instance, the border carnation. I have known blooms to last when cut as long as two weeks.—C. B. R. GARNER.

HABIT OF VIOLAS.

SIR,—Would your correspondent "H. C." who wrote a letter in THE GARDEN of July 11th on "Habit of Violas" kindly give the names with their colours, of a few violas of close-growing, neat habit for edging?—J. KENNEDY

BERRIED SHRUBS AT VINCENT SQUARE

FROM the display at the Royal Horticultural Society's Hall at Vincent Square on November 3rd last, it was clearly evident that the season was fast approaching its end. While a few exhibits of roses and carnations served to introduce a note of brighter colour and to relieve the darker lines of the evergreen foliage, the main feature was the magnificent display of berried shrubs so ably arranged and shown by the Hon. Vicary Gibbs (gardener, Mr. E. Beckett). It was a comprehensive selection, and the highest praise is due to Mr. Beckett and his staff for providing such an exhibit, which was both interesting and attractive, and at the same time of undoubted educational value. It served to indicate the increasing popularity of shrubs in modern gardening and of the infinite variety which is to be found within their ranks. Only by such displays can the attractiveness and charm of many of our shrubs be understood and appreciated, leading to their more extensive cultivation throughout the country. The genus berberis whose praises have been sung many times in these pages, was represented by numerous species, whose well fruited sprays attracted no little attention. For beauty of fruit they probably cannot be surpassed, although the cotoneasters, many of which were shown, run a close second. One or two of the most interesting shrubs which were exhibited were Celastrus articulatus, with its strikingly orange-red coloured fruits; Clerodendron trichotomum montanum, whose enamel blue fruits, with their surrounding bracts, are most attractive; and Hymenanthera crassifolia, with its tiny white berries hugging the stems closely and half hidden by the densely set small leaves furnishing the long, arching branches. Roses were there in variety and several well fruited specimens of Euonymus europæus whose beauty in full fruit is hard to beat. The snowberries were also represented by racemosus and occidentalis. A few shrubs in flower were also shown, serving to illustrate the wide latitude which exists in the shrub kingdom. There were the fine Viburnum fragrans and one or two of the diervillas and ceanothuses. Two notable inclusions were acanthopanax, laden with its densely packed clusters of black shining fruits, and Pyracantha Rogersiana, with its yellow berries.

Other shrub exhibits were those of Messrs. Waterer, Sons and Crisp, who staged many fine species of hollies and several interesting conifers, including many retinosporas, which are so handsome with their light, feathery, marbled foliage; and Messrs. Reuthe, whose exhibit chiefly consisted of conifers in pots.

Roses, carnations and chrysanthemums were the chief floral exhibits at the Show, and in spite of the recent heavy rains the roses were in remarkably good condition for the time of year. Messrs. Alex. Dickson and Sons staged a splendid group of roses, including some of the most effective and brilliantly coloured varieties for bedding purposes. Shot Silk, Lady Inchiquin, Betty Uprichard and Golden Emblem were the most outstanding. Mr. Pemberton exhibited roses of several types and among them were blooms of Padre, Isabel, I. Zingari, Mermaid and Cornelia. The carnation exhibits were very good, the blooms being large and of fine quality and depth of colour. Messrs. Allwood Bros., showed perpetuals, malmaisons, Allwoodii, and perpetual border carnations. Mr. C. Engelmann staged a fine exhibit of healthy and well shaped carnations. A magnificent vase of Laddie, with its attractive salmon pink blooms, was very noticeable. Orchids and carnations were well shown by Messrs. Stuart Low and Co.

Messrs. Keith Luxford staged an excellent display of early-flowering chrysanthemums, all of which were grown outside without any protection whatever. Messrs. Godfrey and Sons had some fine single chrysanthemums, and a general collection of decorative varieties came from the nursery of Mr. W. Yandell. A few dahlias were shown by Mr. Charles Turner, and violets by Mr. J. J. Kettle. Mr. John Klinkert showed his usual topiary exhibit, and plants suitable for pavements were displayed by Messrs. K. and E. Hopkins. Among the shrubs and climbers shown by Mr. L. R. Russell, several beautiful clematises were noticed, the most striking being the varieties Mrs. George Jackman,

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Crimson King, and King Edward VII. Messrs. J. and A. McBean and Messrs. Sanders staged orchids, and the exhibits of paintings of gardens and flower portraits were welcomed back to the Show. A fine exhibit of fruit came from the gardens of Sir Nall Cain, Bt. It was well staged and the fruit excellent in size and colour.

A gold medal was awarded to Mrs. Godfery for a highly interesting exhibit of no fewer than 184 water-colour drawings of European orchids, both species and hybrids being well represented. They had all been prepared from living plants collected during the last seventeen years by Colonel M. J. Godfery, F.L.S., and showed exceptional accuracy in matters of botanical detail and correct coloration.

Messrs. Clarence Elliott showed a large and distinguished collection of alpines between a rugged background of conifers and a ribbon of gentianella. It was remarkable for certain old and robust specimens of rare or difficult plants: Saxifraga diapensioides, Azalea procumbens, Campanula Zoysii, C. Allionii alba and Pyrola rotundifolia. Eritrichium nanum was there, a seedling looking much happier than it usually does in this country, beside a gnarled old tree of Daphne rupestris.

NEW AND RARE PLANTS.

AWARDS OF MERIT.

ACACIA PLATYPTERA.—Attractive sprays of this species, which were exhibited, showed the almost orange yellow flowers in their pleasant globular heads, borne in tiny clusters, which hung gracefully from the flattened stems.

A. SUAVEOLENS.—Another attractive species whose chief distinction lies in the lanceolate phyllodes and the numerous racemes of light yellow flower heads. It forms a most ornamental shrub. These two species were shown by Mrs. Charles Williams, Churston, South Devon.

CHRYSANTHEMUM ONDINE.—An incurved variety, carrying huge flowers, measuring almost 6ins. across and 2ins. to 3ins. in depth. In colour the blooms are white tinged with green towards the centre. The florets are rather stiff. Shown by Messrs. Keith Luxford, Harlow.

C. Mrs. R. F. FELTON.—An exceedingly fine decorative variety, whose colour is most striking and attractive. The florets, of a fine deep shade of bronzy red, are stiff and well formed and lend to the whole bloom a fine sense of proportion and balance. The blooms are well carried on upright stems. It is a variety which should rapidly become popular. Shown by Messrs. Cragg, Harrison and Cragg, Histon.

C. MARY GODFREY.—This is an anemone-flowered variety and has, in its own way, a certain charm. The upstanding cushion, in the centre of the flower, is white in colour, while the surrounding ray florets are of a peculiar shade of pinkish mauve on a white ground. The blooms are medium in size and were borne well on stiff, upright stems. Shown by Messrs. Godfrey and Son of Exmouth.

ORCHIDS.

SOPHRO LÆLIO-CATTLEYA LUCIFER (L.-C. Majestic × S. L.-C. Anzac).—An elegant hybrid, particularly noteworthy on account of its rich coloration. The sepals and broad petals are mauve-purple tinged with red and having a pretty sheen, the roundly formed and large labellum of intense ruby-crimson, the tube portion marked with parallel whitish lines. Its uncommon colour is due to the influence of the scarlet colour of Sophronitis grandiflora, one of the component species of S. L.-C. Anzac. Award of merit. Exhibited by Messrs. J. and A. McBean, Cooksbridge, Sussex.

WINTER SPRAYING

SUCCESS in spraying is dependent upon a combination of scientific and practical knowledge, and of favourable natural conditions which demand a good deal of careful study. Casual, haphazard methods are calculated to end in fiasco, disappointment and waste of money.

With the spray fluids on the market, the workmanlike spraying machines for their application and the instructions for use supplied with every purchase, every gardener has the means placed within his reach to conquer the majority of the enemies that attack his fruits, plants and kitchen garden crops; and with these facts before us it is something of a reproach that the average British garden is still far from qualifying for a clean bill of health.

Investigation of reasons for failure is an excellent means of improving matters, and failure may for this purpose embrace partial successes which might reasonably be considered failures because they ought to have been completely successful.

We will spend no time nor space upon the supposition that failure may be due to carelessness in mixing sprays. It would be an insult to the intelligence of readers to dwell upon the simple fact that plain instructions supplied with sprays must be explicitly followed. One has no hesitation in saying that many failures are due to the fact that spraying is delayed until the enemy is too securely entrenched. In the case of winter sprays, for instance, it is quite a common custom to delay their application until February. The chances are that where winter spraying is most necessary one application is insufficient to make a clean sweep of the pests attacked, but by the time this can be discovered it is too late to spray with powerful winter washes.

The object of winter spraying is to get at pests or diseases which later on will have taken up an impregnable position either in the interior of fruits or beneath the surface of bark and foliage. Stronger chemicals are used because trees and shrubs in a dormant state can withstand them, whereas the same chemicals would injure young growth and foliage. Fruit trees and bushes, roses, and flowering trees and shrubs will very shortly be leafless. Why delay spraying? It is surely better to spray as soon as possible, and to make doubly sure of success by spraying again in January or February.

One of the main purposes of caustic soda wash is to rid the trunks and branches of trees of moss, lichen or algæ for the dual reason that they choke the respiratory organs of the bark, and provide shelter for spores of fungi and eggs of insects. The filth is an abomination, doing mischief every day; there can be no valid reason why it should be tolerated until after Christmas.

It would be a good golden rule never to be content with one application of any spray. A second dose will very often complete the task which, left half done, is not done at all.

An equally prevalent cause of failure is that while the principal objects of care are thoroughly well sprayed other trees about the garden, perhaps of small importance in themselves, are left unsprayed. Pests of cultivated fruits will frequently swarm upon thorns, sloes, crabs and many decrepit old trees in hedges or shrubberies, and the diseases of roses will attack hedge plants of the wild Rosa canina as well as Mme. Edouard Herriot or Lady Hillingdon in the rose beds.

If the trunks and branches of a Cox's Orange Pippin are cleaned of lichen and algæ and some old trees or shrubs close by remain smothered, it will not be long before the feet of birds, beetles, etc., carry the beginnings of a new crop of the old trouble on to the tree; and if among the slime and moss there are spores of a fungus or the minute eggs of aphides or some other insect, they too will probably be carried on to the clean tree, and the work that was so far well done will be undone because it was restricted within too narrow limits. One may justifiably point out that even a laurel, a laburnum, a double May or a quickthorn hedge is a much more pleasing possession when it is clean and healthy than when it is filthy and sickly, and, even apart from the risk of contamination of fruit trees, it is desirable while the spraying machine is in use to spray everything that needs it. The gardener who sprays has a real grievance against negligent neighbours who will not spray. Because a garden owner is too careless to trouble about keeping his trees and plants free from pests and diseases his more enthusiastic and energetic neighbour may be defeated in his efforts to keep his fruits and flowers in a clean and healthy state; and the good work of one who perseveres in waging war upon garden foes is undone by a neighbour who allows his garden to be a sanctuary and breeding ground of all manner of pestilence. That point of view has not been sufficiently stressed or we should surely find less cause for complaint. It is an undoubted fact, however, that the pace of progress is severely hampered because spraying is not conscientiously practised from a sense of public duty as well as for personal benefit.

Spraying should not be deemed to concern the cultivator of orchard fruits alone; everyone who has a gooseberry bush or currant should be interested in keeping it clean. Rosarians should spray in winter as well as summer—for black spot, mildew, rust and aphis will succumb to winter sprays more surely than to the softer sprays that can be used in summer. A. J. MACSELF.

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THE NATIONAL CHRYSANTHEMUM SHOW

As the chairman of the Committee suggested at the Annual Show of the National Chrysanthemum Society on November 5th last, the greatest thing our raisers have done for the flower is to extend its season from a brief four weeks in autumn to one lasting from July to March. And, while the dates given are perhaps the extreme limits of flowering, they are approximately correct.

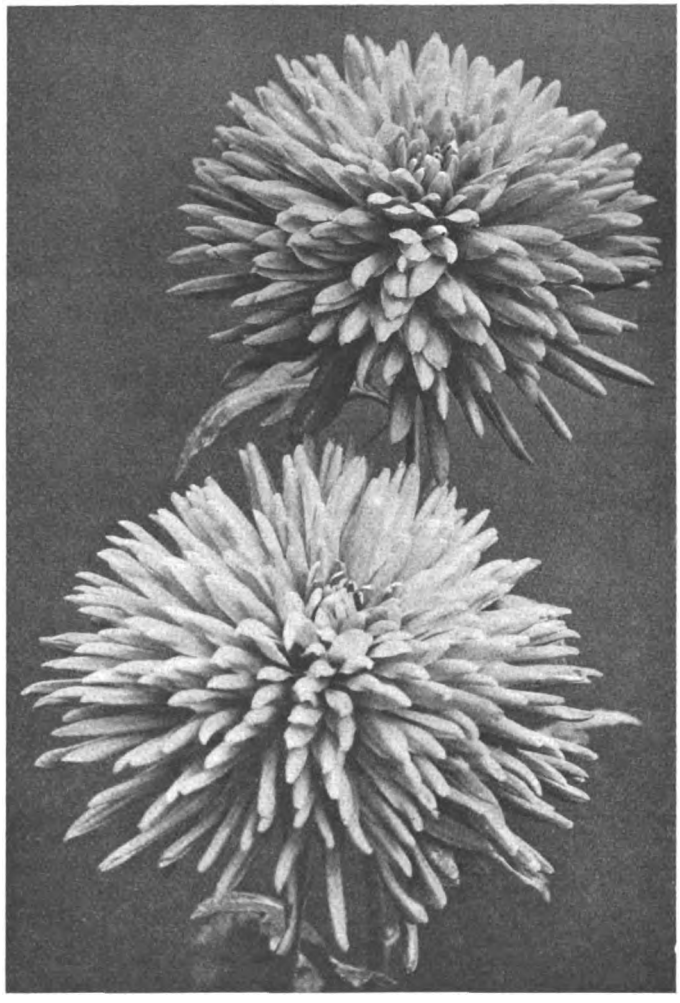
There are those among us whose floral fancies lie in the hardy flower border, who would wish the Society would turn its attention towards the early-flowering varieties and encourage the raising of dwarf varieties which one could plant and feel reasonably confident that, as with the average border perennials, they would continue for four or five years. But, unfortunately, the present-day border chrysanthemum is a tender plant.

But our present concern is rather with the greenhouse varieties which are in flower at the height of the chrysanthemum season, and particularly with those seen at the Show. That the popularity of the Queen of Autumn Flowers, which title its devotees claim for it, continues unabated is evident from the enormous attendance. During most of the afternoon of the first day of the Show it was a difficult matter to make any but the very slowest progress in the hall and was well nigh impossible to make any real inspection of the magnificent trade groups.

As with all flower shows, it was the trade specialist who provided the most spectacular exhibits. Mr. H. J. Jones has set up many collections of chrysanthemums during his long career, but we doubt if ever before he has equalled that of the present occasion. He occupied the whole of the end of the hall, and there he set up a most magnificent display. Along the back he had huge stands of the best exhibition Japanese varieties. There were the rich yellow Mrs. R. C. Pulling, the white Queen Mary, Nan Luxford of soft pink shading, Mrs. C. Swaisland of enormous size and lilac-pink colour, Red Majestic (a brighter counterpart of the popular exhibition variety), Chastity of the purest whiteness, Sulphur Queen and many other sorts. Each of the numerous blooms was perfect of its variety and equal in quality to the finest in the competitive classes.

But Mr. Jones does not confine his attention and energies to those monsters of the chrysanthemum world. He has a warm corner in his heart for the formal incurved type and rightly insists that these favourites of bygone days will "come again" when their great decorative value will be fully appreciated. The truth of this was well evidenced in the stands of Golden Thorpe, which contained two dozen or so perfect blooms of rich golden yellow, and in another of the white A. W. Thorpe. Other good varieties of this type are Captain Kettle, crimson with golden buff reverse; J. W. Streater, delicate creamy primrose; Romance, rich yellow; and Mahogany, of reddish mahogany colour. Among the single-flowered varieties in this group we especially noted Pink Beauty, Mrs. Palmer, white; Mrs. F. Brill, pink with white zone; and the rich yellow Phyllis Cooper. The other types—the market varieties, the anemone-flowered, the spray-flowered and the spidery petalled—were also well represented in this unique collection, which was given the large gold medal.

Also of great interest and value was the large group of Messrs. W. Wells and Co., which occupied a large space just inside the hall. Their medium-sized Japanese varieties, most of which produce half a dozen or more flowers of great value for house decoration, made a splendid show. The very best of the many sorts were Gloriosa, bright golden bronze; Liberty, crushed strawberry; Phoebe, silvery pink; Market Red, velvety blooms; Ethel Thorpe, bright mauve; Harmony, bright reddish orange; Huntsman, rich crimson; In Memoriam, velvety crimson; Ivy Gay, mauve; J. W. Streater, golden yellow; and Mme. H. Foreau, purple. Besides their great value as cut flowers, the above are of dwarf habit and make splendid plants for large vases. Captain Kettle, a crimson and gold incurved variety, and R. Hooper Pearson, richest yellow, were also most attractive. Although these sorts were very prominent, the large exhibition varieties also filled many vases, and they included Mrs. B. Carpenter, Majestic, Mrs. Algernon Davis, Mrs. Harold Wells, Mr. George Munro and Queen Mary.



THE HANDSOME CRIMSON BLOSSOMS OF MRS. R. F. FELTON.
Shown by Messrs. Cragg, Harrison and Cragg.

Many excellent single-flowered varieties were staged by Messrs. Keith Luxford and Co. The very best were Nona, pure white; Oriole, yellow; Everlasting, a flower of great substance and rich crimson colour with a narrow pale yellow zone; Phyllis Cooper, rich yellow; and Ethne, pale bronze stippled over golden yellow. Very many exhibition Japanese varieties were included in this interesting collection, and the chief were Julian, rosy buff; Mr. T. Slack, pale crimson, almost scarlet; Nan Luxford, silvery pink; Thomas W. Pockett, rich pink with silvery reverse; Majestic, golden amber; and Mrs. George Monro, velvety crimson.

The graceful spray-flowered chrysanthemums were seen to much advantage in the exhibit of Mr. William Yandell, where we were reminded that the old variety Source d'Or is still of great value. Market Red, Scarlet Sunshine, Rosalind, reddish terra-cotta; Miss A. Brooker, crimson chestnut; and Stanton are the names of only a few of his good sorts. Queen of the Pinks, of uncommon and fascinating form, was largely shown by Messrs. W. Godfrey and Son, who also had their new pale yellow single called Devonshire Cream, with Dignity, November Glow, Gorgeous, Ruby and others of this useful type; while Mr. A. G. Vinten set up good vases of Shirley Scarlet, Exmouth Pink Miranda (glowing scarlet), Raleigh (deep crimson) and Phyllis Cooper.

No doubt owing to the high cost of transport, plants are not shown so much as formerly, but Mrs. McDowell Nathan sent from her gardens at Little Heath Wood, Potters Bar, a group of particularly well grown plants and was awarded a gold medal. Mrs. Nathan was also very successful in the competitive classes, especially with the large Japanese blooms shown in vases.

A specimen plant of Mrs. K. Luxford bearing over sixty more than medium-sized, brightly coloured blooms excited a deal of admiration. This perfect example of the specimen plant was sent by Mrs. Fox of Melmouth Lodge, Cookham. The Swanley Horticultural College had a graceful group of pot chrysanthemums near the annexe.

The competitive exhibits again reached a high standard of excellence, and most of the many classes were well filled. We were glad to find that the principal classes for the large exhibition blooms shown in vases were more popular with the visitors than the arrays of specimen blooms set out in congested rows on show boards, though we realise that quite a number of growers still adhere to the formal method, of which there were six exponents of thirty-six distinct varieties, and Mr. E. Mocatta of Woburn Place, Addlestone, again won the first prize and that for twenty-four varieties.

In the more interesting classes for similar magnificent flowers in vases the principal first prizes were won by Viscount Hambledon, Greenlands, Henley-on-Thames, and the Lord Wandsworth Agricultural College. Lord Terrington, Spinfield, Marlow, was first with twelve delightful incurved varieties in large vases.

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There were not so many exhibits of single chrysanthemums as usual, but Mr. F. J. Yarrow, St. John's Wood, won the George Monro Cup with twelve splendid vases of such varieties as Miss Joyce Moore, Audrey, William Smith and Crimson Velvet. Audrey was a beautiful orange yellow variety, Crimson Velvet a crimson with yellow disc, and Miss Joyce Moore, a large crimson.

NEW CHRYSANTHEMUMS.

The Floral Committee had a large number of new varieties to consider. Mary Godfrey, Mrs. R. F. Felton and Ondine, which had already received the R.H.S. award of merit, were given first-class certificates.

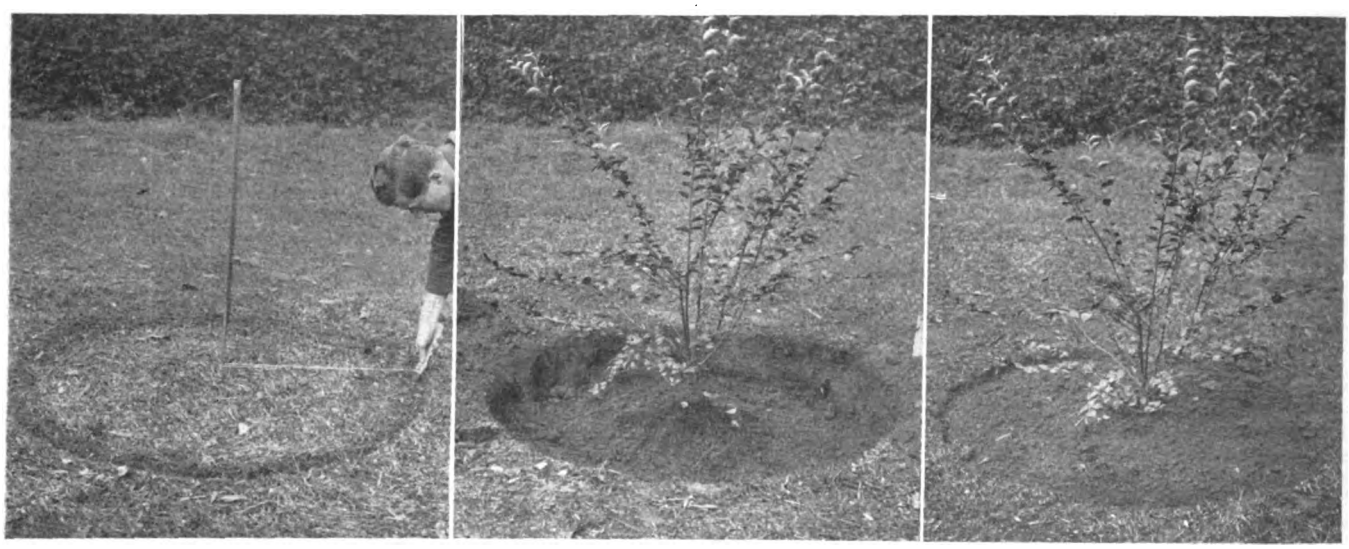
AWARDS OF MERIT.

MRS. A. HOLDEN.—A magnificent exhibition Japanese variety of rich terra-cotta colour flushed with crimson and showing an old gold reverse. Shown by Mr. G. Carpenter.

RONA.—A medium-sized single of perfect form and rich crimson amaranth colouring. Shown by Mr. H. Woolman.

No. 6.—Is the best rosy crimson sport from Bronze Molly we have seen, and it possesses considerable decorative value. Shown by Mr. A. G. Bendir.

THE PLANTING OF SHRUBS



1.—THE MAKING OF THE RING PRIOR TO DIGGING.

2.—PLANT IN POSITION WITH ROOTS CAREFULLY SPREAD OUT ON THE SOIL.

3.—PLANTING COMPLETED, NOTE THE COLLAR OF PLANT IS AT SOIL LEVEL.

ONE of the first questions to be considered in connection with planting shrubs is the best time for the work. Most deciduous shrubs can be moved successfully from the end of October until the beginning of April, when the weather is mild, and the ground in good condition for working. There are a few exceptions. Magnolias, for example, move best towards the end of April and early in May. A very good time to move M. conspicua and M. Soulangeana is after the flowers are over when new growth is beginning. With the majority of deciduous shrubs commence planting in late autumn, when the leaves turn colour, and begin to fall.

With regard to evergreens, unless they can be moved with good solid balls of soil attached to the roots, the subject is not so easy. September and October, or April and May are the best periods to plant hollies, yews, evergreen oaks, etc. The greatest enemy of newly planted evergreens is cold, drying winds. Evergreen rhododendrons are an exception. These invariably move with good large solid balls of soil holding the roots and can be safely moved from September to April in open weather.

PREPARATION OF THE SOIL.

This is an equally important subject in the cultivation of fruit, flowers, vegetables and shrubs. In some gardens, however, as far as shrubs are concerned, they receive the least attention of the four, yet the future growth of the shrub, to a considerable extent, depends on the preparation of the ground. For vegetables and herbaceous plants the soil is, or should be, frequently deeply dug, but, except for possible thinning, one expects shrubs when once planted to grow undisturbed for many years.

The best soil for the majority of shrubs, if it is possible to choose the ground, is a deep, well drained loam. For shrubs a depth of 2ft. should be cultivated by what is termed "bastard" trenching. By this method the bottom 1ft. of soil is thoroughly broken up, some manure, or decayed garden refuse mixed with it, but left at the bottom. The top 1ft. is likewise worked and kept at the top. In gardens with a poor or in some way unsuitable sub-soil, considerable work will be desirable in the preparation of beds and borders for shrubs. A proportion should be removed, how much will depend on local circumstances, and replaced with top-spit loam, decayed garden refuse, bonfire ashes, leaf-mould, old potting soil, in fact anything suitable to improve the ground.

When planting single specimen shrubs on a lawn, a hole should be prepared much larger than at present required, so that for some years after planting the roots have a good area of fine soil in which to grow. The station prepared should be at least 6ft. in diameter, and 2ft. deep, 8ft. diameter is better for large growing shrubs. If necessary a proportion of the ground can be turfed over after planting.

A CULTIVATED RING

should be kept round all specimen lawn shrubs. Experience very definitely points to the better health of shrubs when the ground is surface cultivated, than when grass is allowed to grow close up to the stems. Also mulching and feeding with manures is much easier to undertake and more satisfactory.

The question of pruning at planting time is a subject which should have attention. However carefully the work may be done, there is usually some damage and loss of roots. To balance the check caused by transplanting, some shortening of the longer shoots is desirable. The actual amount may vary according to the size of the bushes, the number of roots, and whether the move has been a good one, or the roots rather damaged in the transplanting.

Independent of the shifting, it is often convenient at planting time to thin out crowded branches, removing old or thin weakly twigs, in addition to shaping the bushes. This I can picture being done with philadelphus, diervillas and spiræas, even though the plants may be only three or four year old plants, from the nursery, or during the thinning out of a recently planted shrubbery bed or border.

With regard to evergreens, thinning and shortening of the growths is most desirable, unless they are moved with large, solid balls of earth. Transplanting must check the flow of moisture from the roots, to balance which, and reduce the amount of transpiration, the twigs and evergreen leaves in particular should be considerably reduced. I have on occasion seen a holly, which moved rather badly, saved by picking off most of the leaves.

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Deep planting is the cause of many losses among trees and shrubs, more particularly in the case of plants with a clean stem near the ground level. The bark is buried perhaps only a few inches, but with some plants this is sufficient to kill the bark and underlying tissues, stopping the flow of food from the roots to the branches. Rhododendrons and lilacs in particular suffer from deep planting. The fact that a bush or tree is planted too deeply may not be apparent for some few years. It really amounts to a case of slow starvation by the gradual cutting off of the food supply, noticeable in the declining health of the plant. It is easy to plant a shrub so that it will be eventually too deep. The ground is trenched to a depth of 2ft. or more, the soil trod firm and planting done in the orthodox way. The soil, however, is not replaced so firmly as before, hence if the plant is not left rather high to allow for the sinking of the loosened soil, there is the chance of the stem being eventually buried. This is only likely to happen when single specimens are planted. In the entire trenching of beds and borders the whole of the ground naturally sinks together in time.

It is very desirable to water all newly planted shrubs of any appreciable size. This not only assists in settling the soil around the roots, but makes available an abundance of moisture for the disturbed roots. If transplanting is done early, when the soil is still warm, this materially hastens the making of new roots. In the case of evergreens watering at planting time and during dry weather, until the plants are established, is practically essential. A. O.

GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants.

SAVOY DWARF GREEN CURLED.

TO look upon a good breadth of this winter cabbage in October or November is as much a charm and joy to the interested cultivator as is the gay display made by some choice flowering plant.

This variety of Savoy is mentioned in Nicholson's "Dictionary of Gardening," and it is still one of the foremost kinds in cultivation, and gets a good name all round. "An excellent and distinct variety," "The best for general crop," and "A good winter variety," are some of the encomiums heaped upon this variety. Like most of the brassica family the seed should be sown on a prepared seed bed in spring, and the young plants set out at 18ins. distant from each other in an open sunny position in June; then the plants get sufficient time to grow and mature before severe weather sets in.

Early in February of this year we had a section of ground—on which the old asparagus beds had been situated—thoroughly trenched and manured, the bottom soil being brought to the surface. On this ground our Dwarf Green Curled savoys have grown exceptionally well.—D. A.

THE TREATMENT OF DEFECTIVE VINE BORDERS.

REALLY well constructed vine borders, although affording the best results in every way, will not last indefinitely without some attention being paid to them. The badly constructed border is a source of trouble almost from the beginning, and renovation is a difficult matter when the roots are in it. Still, it is possible to improve such borders during the winter months, and there are many defective ones requiring urgent attention. The chief defects are bad drainage, unsuitable soil and consequent sourness of it, which has an ill effect on the roots, as the latter cannot live in such soil, much less continue to increase as normal roots should. If the grapes shank, if the leaves become sickly yellow and crack around the edges, there is not any doubt that the roots of the vine are not active, and it may be that many of them are dying. The surface soil should be carefully taken off till the roots are bared; if the latter are fibreless and the rind or bark on the largest is brown and greasy to the touch, there is sufficient evidence that the soil is in a bad condition. If the drainage is wrong, lay pipes to an outlet near by to rectify matters. When the roots are bared on the surface, carefully collect them, tie in small bundles, spray with water and wrap them in wet sacking; keep the latter moist while as much old soil as possible is being removed and new fibrous loam placed in. Firm the new loam, spread out the roots and cover them with 4ins. of loam and old mortar rubble. Only add finely ground bones, not any organic manure.—HANTS.

RE-POTTING SHOW PELARGONIUMS.

THE cuttings of these are rooted from the end of July up to a month later. In some instances the cuttings, when not too hard, form roots quickly; when hard they are a long time in making sufficient roots to warrant the cultivator in distributing them, as must be the case when potting singly takes place. Late inserted cuttings should be placed singly in small 60-sized pots, it will then be unnecessary to disturb them before the first week in February. Where a number have been inserted in larger pots and a warm greenhouse is available, the potting-off may be done now, in preference to leaving them in the cutting pots nearly all the winter. The thing that matters most after the potting is watering. The soil must never be in a sodden state nor allowed to get dust dry, though the latter condition is the safer. Fibrous loam two-thirds, leaf-soil one-third, with a sprinkling of old mortar rubble, will form a suitable compost. All that is necessary is to have clean, dry pots and crocks. The roots *a* are tender, break up the soil *b* carefully so as not to bruise them. Have sound drainage *c*, and pot moderately firmly, so that the roots *d* are not unduly pressed down and broken off. A potting stick is unnecessary.—GEO. GARNER.

THE CULTURE OF ARUM LILIES.

THE Nile lilies (Richardia africana) are easily managed plants, and can, if desired, be had in flower at Christmas. Each year about the middle of August we turn the plants out of their pots, where previous to this time they have been out of active top growth. The strongest crowns, or suckers, are then selected and five of them placed quincunx style in each 12in. pot. In the potting compost, which should be fairly rich, we intermix some well decayed farmyard manure, which the Nile lily enjoys. After potting, the plants are placed in a frame and given no water at the roots for a few days, but sprayed over and between the pots on all fine days. This, in conjunction with keeping the frame closed, provides a genial atmosphere, and the plants are then encouraged into growth. As soon as the plants have made headway, a little air is admitted to the frame on favourable occasions, but genial growing conditions are maintained. These cultural details are followed until such time as the plants are set in one of the glasshouses, when they should be staked and matting run round the stakes, as growth advances. Our plants this year are strong and healthy, and at present—the last week of October—many rolled up flower spathes are showing above the beautiful green foliage. The plants are situated in the carnation house, and are therefore not unduly hastened by artificial heat.—DAVID ARMSTRONG.

DAHLIAS FROM SEED.

I WONDER how many of your readers try raising their own plants or tubers from seed. I have had great success with them this season. I sowed seed about the middle of January in heat 55° to 60°. They germinated in ten days, and I then brought them into a cool house and potted them off into thumb pots on showing rough leaves. I next potted them on into 60-sized pots and from these into 4in., keeping them on a shelf near the glass, and gradually hardening them off till I put them out in May. I planted them 2½ft. apart, and by the end of July they had covered the whole border, where they kept a uniform height throughout the season. The first blooms were out on July 10th. They had plenty of manure and were given a mulch. The variety used was Sutton's Star. —M. MASON.

MAKING A PEACH TREE BORDER.

ALTHOUGH it may be a very easy matter in the case of the expert, it is a difficult operation for the inexperienced cultivator to carry out without some instruction. Even in the open air peach and nectarine tree borders must be carefully constructed if good crops of fruits are to be reaped. But I am referring to borders for trees grown under glass, chiefly, in this note. Presuming the natural soil to be a retentive clayey one, the efficient drainage of such should be the first consideration. The position—site—has an important bearing on this part of the work; if the ground slopes naturally in one or more directions, the border may be made so that the surface is on a level with the surrounding ground and a good layer of drainage material with a pipe outlet will ensure efficient drainage. If the site does not permit of any outlet and the soil is clayey, then it will be best to have a slightly raised border, a very good drainage layer and a few pipes laid to a deep "soak" or well just outside the house. In addition to this, some drain-pipes should be laid among the basal material and more ordinary drain-pipes fixed upright in the border at a distance of 5ft. apart. These should have wire netting on the top

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to prevent soil and blocking matter entering, and be about 4ins. above the border surface. The drain-pipes, so placed, will ensure ventilation of the border and sweetness of the compost in the latter. If the natural soil is light and the site good for drainage, then ordinary rubble material in the bottom will answer without any pipes. The approximate depth should be about 2ft. of prepared compost.—G. G.

OBITUARY.

MR. JAMES WHITTON.

IT is with profound regret that we have to announce the death, on October 30th, of Mr. James Whitton, J.P., V.M.H., the late Director of Parks, Glasgow. Mr. Whitton, who was born at The Gardens, Methven Castle—where his father was head-gardener for about half a century—in 1851, served his apprenticeship at Thirlstane Castle, and remained there as journeyman until he went in the latter capacity to Glamis Castle, the seat of the Earls of Strathmore. After his promotion as foreman at Glamis, he was appointed head-gardener to Mr. Houldsworth, Coltness, Wishaw, where he remained for some years until he was offered and accepted the post of head-gardener at Glamis Castle. In 1893 he received the appointment as Superintendent of Glasgow Parks, and held this appointment, later entitled that of "Director of Parks and Curator of the Botanic Gardens," until his retirement on May 31st, 1923, when he was succeeded by Mr. Edward Matthews.

Mr. Whitton had been in failing health for some time, but it was only latterly that his illness took a serious turn and after some weeks' confinement to bed he passed away at his home, Bellahouston House, Glasgow.

His eminence as a horticulturist and arboriculturist is well known to all interested in these crafts, and it is needless to expatiate upon the ability with which he managed the huge responsibility of the directorship of the Glasgow parks, only five in number on his appointment but increased to thirty-one with many open spaces, at the date of his retirement. The Glasgow parks are recognised as models of their kind, and witness in the highest degree Mr. Whitton's zeal, energy and ability. In wider circles he was well known as an expert of the highest skill. The Royal Horticultural Society conferred upon him the coveted Victoria Medal of Horticulture, and his services as juror were highly appreciated at international and other horticultural exhibitions at home and abroad. His knowledge of and love for arboriculture also led to his holding high offices in various societies for the encouragement of forestry.

PUBLICATIONS RECEIVED.

"Insecticides, Fungicides and Weed Killers." A practical manual on the diseases of plants and their remedies, by Dr. E. Bourcart. Second English edition revised and enlarged. Published by Messrs. Scott, Greenwood and Son, 8, Broadway, Ludgate Hill, London, E.C.4; price 18s.

"Bulb Gardening," by A. J. Macself. Another volume in the Home Garden Book Series. Published by Messrs. Thornton Butterworth, Limited, 15, Bedford Street, London, W.C.2; price 6s. net.

CATALOGUES RECEIVED.

Messrs. Perry, Enfield, Middlesex. An extensive list of choice hardy plants, including many new and rare alpines and perennials.

Messrs. William Watson and Sons, Limited, Killiney Nurseries, Dublin. List of roses, including a description of the new hardy crimson broom Dorothy Walpole raised by this firm.

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GARLIC—A NEGLECTED VEGETABLE

IT is a far cry from gardening to garlic, but I think I should be failing in my duty to my fellow creatures were I not to write a few kindly words on behalf of this misjudged vegetable. Lest it should be imagined that my customary lunch is a bowl of garlic and a hunk of bread, as is so popular in southern Italy and Algeria, I hasten to add that I like my garlic, as indeed most other things, in moderation; but moderation in the use of garlic is difficult to find. I had dinner at a restaurant the other night where they should have known better, and I asked to have the salad bowl rubbed around twice with garlic before the lettuce was added. The waiter either misunderstood or pretended to, and to my horror proceeded to sift chopped garlic out of a gigantic caster over my salad. That is an object lesson how *not* to use garlic.

The truth is that no English, Scotch or Irish cook knows how to use garlic—or, for that matter, sage. I have had to give up roast goose and stuffed veal because of the abominable amount of sage that is always added to the stuffing; but sage is a coarse and crude weed, not to be mentioned in the same breath as garlic. Good cooks laugh at sage and look upon it as a deodoriser. If a cook is given garlic in this country, she begins by using it as an onion and, after terrific complaints, becomes frightened of its potency and gives it up in fear and trembling. Overdone it is a curse which follows you around for days, but used in the right proportion it gives a zest to many an uninteresting dish and imparts a peculiar, indefinable, nutty flavour which nothing else gives. There is something elusive about its charm that lovers of a trace of it can never fathom.

There is only one rule that must be followed in the use of garlic; it should never be so strong that it destroys your appreciation of the next dish. It should never be used either whole or chopped up in a dish unless by an experienced cook. The method is simple; it should be rubbed round the inside of the pot or dish, and the proportions are given by less or more rubbing. The obvious use that comes to everybody's mind is in a salad. Take a clove of garlic between finger and thumb and press it firmly on the inside of the salad bowl. Run it around the inside two or three times and it will improve any salad, provided, of course, that oil and vinegar dressing is used. Here may I also add how a little chopped tarragon improves a green salad; it gives it a piquancy that is often lacking.

There are dozens of dishes which are raised above the ordinary by the faintest trace of garlic in their make up. Tripe and onions, strange though it may seem, is one that is vastly improved by a clove of garlic being rubbed on the inside of the stewpan, while a calf's kidney stewed in a little stock to which a glass of dry white wine has been added and with the bottom of the pan well rubbed with garlic is an extraordinarily good dish. The sauce is, of course, a little watery and rather a muddy colour, but appearances are deceptive. If you dislike the look of it, a little boiled rice or mashed potatoes can be added to soak up the sauce.

Now as a solace for having read so far with me in my defence of garlic, I will give you a recipe for cooking potatoes that is not common and is always a success. It has a name in French of considerable length, but I have forgotten it. Rub the bottom of an earthenware or glass fireproof dish vigorously with a clove of garlic, about six hard rubs is sufficient, then cover the bottom with a layer of slices of raw potatoes about a third of an inch thick; they can be either flat or overlapping. Sprinkle them with salt and pepper and add a lump of butter the size of a large walnut. Then pour in milk until the potatoes are just covered and put the dish in a moderate oven for half an hour or so. When the milk is completely soaked up the dish is ready. Serve very hot. It is so good that it is a meal by itself, but here again is a case where the dish is made by the trace of garlic. Without it, it would be a vegetable; with it, it is a dream.

Garlic has been grown in the British Isles for centuries, and at one time was used extensively in the pharmacopœia. It is not often seen in gardens nowadays, and perhaps it is hardly worth growing, for a little goes such a long way. Still, whether it is grown or not, it could certainly be used a little more in our cooking.

E. H. M. C.

PLEASE REMEMBER TO TELL OTHERS ABOUT YOUR PLANTS THROUGH THE COLUMNS OF "THE GARDEN."

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

CYPRIPEDIUMS FOR AMATEURS, by Gurney Wilson.

ORNAMENTAL PRIVETS, by Camillo Schneider.

A ROCK GARDEN OF THE NORTH, by Halliwell Sutcliffe.

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THE MOCK ORANGES

NO SHRUBBERY BORDER IS COMPLETE WITHOUT THEM. THEY CAN BE PLANTED DURING THIS MONTH IN FINE OPEN WEATHER.

THE philadelphuses form one of five large genera of hardy shrubs belonging to the saxifragaceæ and are closely allied to the deutzias. Cultivators handling large numbers of hardy shrubs can usually separate most of them at a glance by their appearance in growth. The important botanical distinctions are that the single-flowered philadelphus has usually four petals, four calyx lobes, a large number of stamens and simple hairs; while the deutzias have five petals, five calyx lobes, ten stamens and stellate hairs.

CULTIVATION.

Few families of hardy shrubs are more easily propagated by cuttings. Soft shoots root freely under glass during July and August—the earlier date is preferable, together with a gentle bottom heat; during August insert in a cold frame or under a cloche. Cuttings made of ripened wood will root on a border outside if inserted during October and November. Suckers, or offsets, and layering also provide ready means of increase. The mock oranges are also easy to raise from seed, from which, however, they may not come true.

From the way the common mock orange grows and flowers every year in small gardens and shrubbery borders, with comparatively little, if any, attention, it is obvious they will grow satisfactorily in most soils. Few hardy flowering shrubs, however, give a better return for attention in the liberal preparation of the ground. A rich loamy soil is the best, but ordinary garden ground trenched 2ft. deep can be made very suitable for philadelphus by adding humus from the garden refuse heap, bonfire ashes, leafmould and decayed manure. If the soil is very poor a good dressing of fibrous loam is worth while.

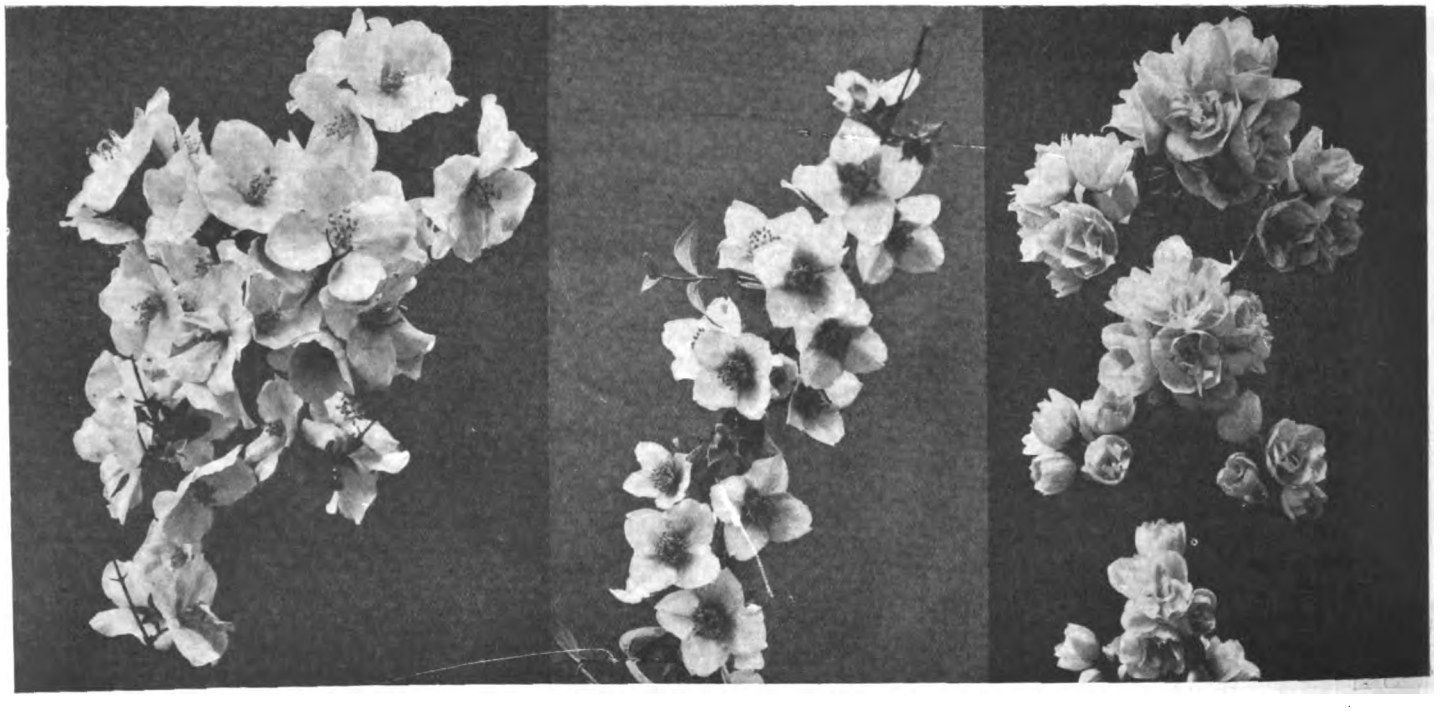
They grow and flower best in open sunny positions, but do quite satisfactorily in moderately sunny situations and on north borders, if they get plenty of light. In addition, they are exceptionally free-rooting shrubs with an abundance of fibrous roots. Hence with ordinary care they transplant readily and safely at any time between about mid-October and the end of March, when the weather is open and the ground in workable condition. Should opportunity permit, plant during the first six weeks of this period.

PRUNING.

Pruning generally implies the shortening of certain of the shoots. In the case of the mock oranges thinning is a better word to use. To shorten the growths might mean the removal of a fair proportion of the best flowering wood for next year. The best time for thinning the growths is immediately after flowering. Keep the bushes open and well balanced by cutting out the oldest stems, right to the ground level if need be. Remove old flowering wood on which there is no new growth, and cut out thin weak twigs where crowded.

With some of the dwarf-growing hybrids, such as Lemoinei erectus and purpureo-maculatus, a system of liberal annual pruning immediately after flowering can be practised with very good results. As soon as the blooms shatter, the flowering branches are cut out to the base or within a few inches of the ground. This induces the production, almos at once, of vigorous young growths which by autumn may be 3ft. or more in height, promising a wealth of blossoms for the following year. Whatever thinning or pruning is done to large and small bushes of mock oranges, the main endeavour should be the encouragement of healthy new growths, as it is from these we must look for the best of next season's flowers.

Mulching with well rotted manure is very helpful to the bushes: in fact, when the intensive system of pruning is practised it is an important part of their cultivation. The mulch can be applied in early spring, or after flowering when the pruning is done. The latter is the more beneficial, especially if the weather is dry; but in some gardens objection is raised to the smell of manure when the beds and borders are at their best in summer.



P. VOIE LACTEE. P. PURPUREO-MACULATUS. P. VIRGINAL.

THREE OF THE FINEST VARIETIES OF MOCK ORANGES.

In height they vary from about 3ft. up to 18ft. or 20ft., while old specimen bushes may be nearly or quite as much in diameter. Here, then, is a wealth of hardy flowering shrubs, the true value of which is fully appreciated in very few gardens. There is a liberal choice in variety for large and small gardens. M. Lemoine of Nancy, when he crossed P. microphyllus and P. coronarius about 1883, had probably no idea that his first hybrid, P. Lemoinei, and the upright form, var. erectus, were the beginning of a wonderful race of hybrid garden shrubs. Excepting the rose and the rhododendron, I can think of no hardy shrub exhibiting to a greater degree the skill of the plant breeder. Another milestone was passed when purpureo-maculatus was introduced by

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M. Lemoine about 1904. By using P. Coulteri as one of the parents the rich purple blotches at the base of the petals in this species were obtained in some of the hybrids. Thus to-day we have not only the choice of tall, medium and dwarf growing shrubs, but there are sorts with small, medium and large blossoms up to 2ins. across, with single, semi-double and very double flowers. The predominant colour is, of course, white, but this varies from snow white to cream, some with showy rich yellow stamens. We have also to-day an interesting race with the purple blotch represented by Belle Etoile, Bicolore, Etoile Rose, Fantaisie and Sybille.

The persistency of flowering year after year, and the prolific abundance of the blossoms is not the least noteworthy characteristic of the mock oranges. As fragrant hardy shrubs the philadelphuses stand alone, the powerful scent of the dwarf P. microphyllus and its numerous hybrids being exceptional.

During June and July the beautiful flowers and strong fragrance are valuable assets in the pleasure grounds, in small or large groups in shrubbery borders, and planted in masses in the landscape. Single specimens and beds of the dwarf bushy sorts are useful lawn subjects. For small beds plant P. microphyllus and P. Lemoinei erectus; in large beds Virginal and Voie Lactee are particularly effective.

THE LATE-FLOWERING PHILADELPHUS GRANDIFLORUS.

THE SPECIES.

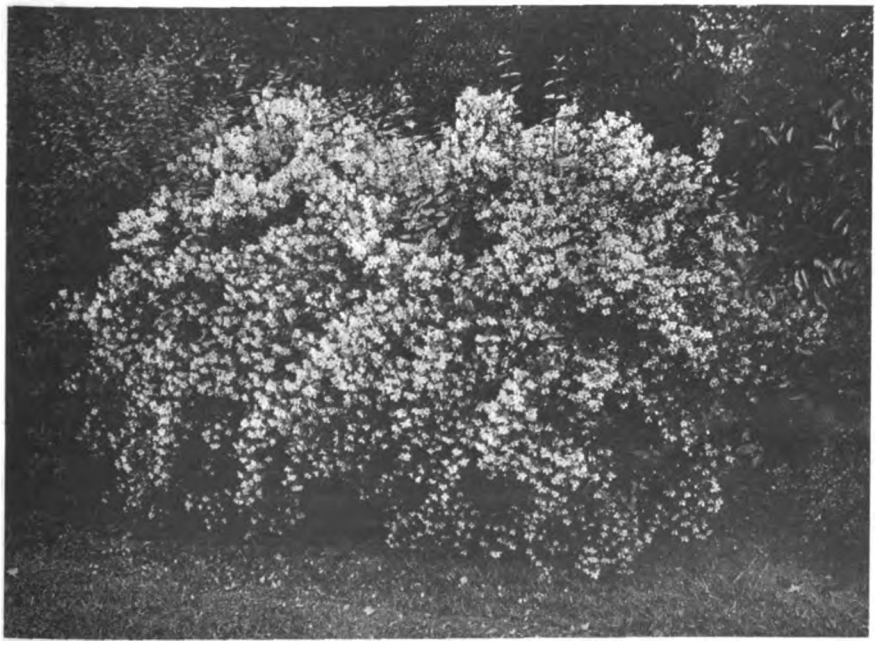
In the recently published Kew Hand List of Trees and Shrubs the names of twenty-eight species and several geographical varieties are given. As cultivated at Kew these exhibit a very interesting race of hardy flowering shrubs. With such a wealth of beautiful hybrids, however, from which to select for extensive garden planting, only a few of the species are sufficiently distinct and of outstanding merit for general use. These are mostly of tall, robust habit, the notable exception being P. microphyllus, a dwarf bushy shrub from Colorado, 2½ft. to 3ft. in height, with small leaves, and powerfully fragrant small white blossoms produced in profusion during June.

P. coronarius is the common mock orange of gardens, a good-natured shrub up to about 12ft. high producing in early June a profusion of fragrant creamy white blossoms. P. grandiflorus is a large bush up to 12ft. or 15ft. high, notable for its large 2in. wide pure white and scentless blossoms. It is a native of the south-eastern United States. P. Lewisii, a species from western North America, is one of the most floriferous of the taller mock oranges. Mature bushes up to 12ft. or more in height are gracefully semi-pendent in habit, covered at the end of June and in early July with white blossoms. P. insignis has cup-shaped white flowers freely borne in large panicles of twenty or more blossoms, a vigorous bush up to 12ft. or more in height. It is a native of western North America. P. Wilsonii, a new species from Szechuan, China, is a useful addition with pure white flowers.

SINGLE-FLOWERED VARIETIES: *Avalanche*, large pure white flowers, bushes 5ft. to 6ft. high; *Belle Etoile*, milk white tinted pink in centre; *Bicolore*, white, purple blotches at base of petals; *Coupe d'Argent*, large sweetly scented pure white flowers; *Etoile Rose*, small foliage, dainty white flowers, with rosy purple central blotches; *Fantaisie*, profuse-flowering, medium size white blossoms with pale rose centres; *Lemoinei erectus*, one of the first hybrids and still indispensable for bedding; *Mont Blanc*, a notably fragrant bush some 5ft. high, upright in growth; *Norma*, large pure white flowers; *Nuce Blanche*, snow white; *Œil de Pourpre*, one of the best sorts with dark purple centre; *Purpureo-maculatus*, the first hybrid with purplish rose centre; *Voie Lactee*, large round snow white blossoms.

DOUBLE-FLOWERED VARIETIES: *Argentine*, large pure white blossoms with imbricate petals; *Banniere*, semi-double flowers which suggest small gardenias; *Boule d'Argent*, masses of snowy white blossoms; *Bouquet Blanc*, double and semi-double flowers in clusters; *Conquete*, long flexible shoots clothed with pure white fragrant blossoms; *Dame Blanche*, semi-double creamy white flowers; *Girandole*, large clusters of double white blossoms; *Glacier*, snowy white, stout erect grower; *Manteau d'Hermine*, dwarf, compact growth, useful front row shrub; *Mere de Glace*, large white rose-shaped blossoms; *Rosace*, arching branches white flowers, deliciously fragrant; *Virginal*, immense pure white flowers, the best double-flowered mock orange.

For a small garden, my choice of six mock oranges would be: Virginal, Voie Lactee, microphyllus, Lemoinei erectus, Œil de Pourpre and Argentine. If there is space at the back of the shrubbery border for a tall bush plant, P. Lewisii. A. O.



PHILADELPHUS LEMOINEI WREATHED IN BLOSSOM.

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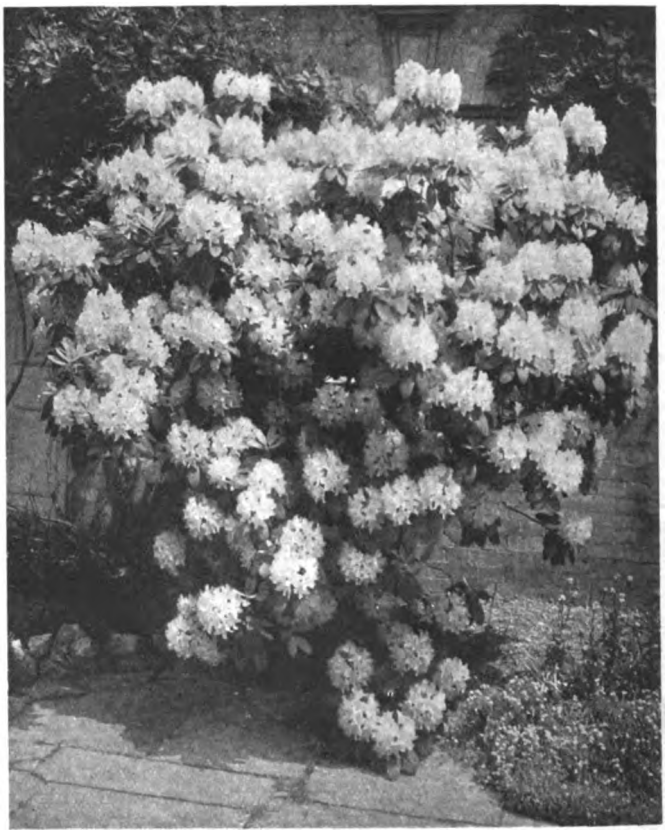
RHODODENDRONS FOR EFFECT

A KNOWLEDGE OF THEIR REQUIREMENTS IS A GREAT HELP IN THE EFFECTIVE USE OF THESE INVALUABLE SHRUBS.

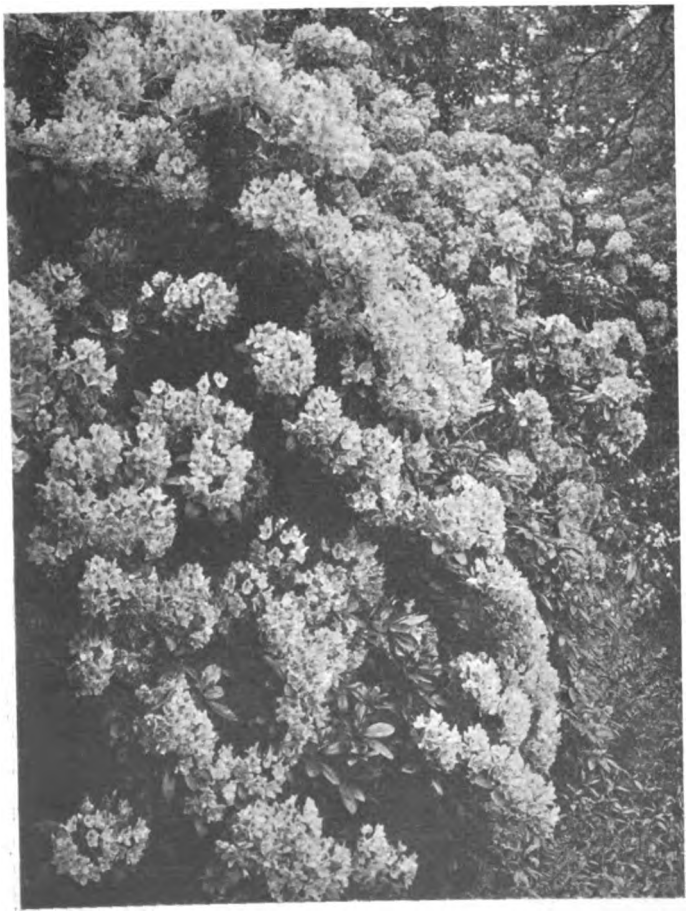
ALTHOUGH the majority of rhododendrons that one sees in gardens are easily grown, yet there are few plants that respond so freely and produce their maximum effect when a little time and trouble are taken over their situation and cultivation. Rhododendrons will cling to life even if planted in the most unsuitable places, but even the hardiest likes some consideration if it is to flower year after year. How often is it decided to plant rhododendrons in some exposed position in the garden because the gardener or owner cannot think of anything else suitable. The argument is always the same. They are hardy and they are evergreen; they produce flowers, so they are better than bays or laurels. This is the wrong way to consider even the common R. ponticum. They should be looked upon first and last as flowering shrubs, and as such they should be planted and tended so as to give the maximum effect.

Everybody knows the conditions suitable for rhododendrons—absence of lime in the soil, plenty of humus, good drainage, shelter from wind and a certain amount of shade, varying according to the species or hybrid to be planted, and so on. There are, however, other considerations that have to be thought of, if they are to produce their blooms to the best effect.

A number of people consider what are called hardy hybrids as desirable subjects for planting in beds. This is usually a mistake, for beds are often made without a thought about surroundings, and rhododendrons, more than any other shrubs, require a background to show off their wares. Not only this, but beds, of their nature, are usually placed in sunny positions, and, however hardy the hybrid may be, there are few that do not lose their colour quickly if planted in full sun. It is often necessary to fill a bed with shrubs, particularly at the approach to a house, but in my opinion azaleas are better than evergreen rhododendrons for this purpose. If some evergreens are preferred, the azaleas can be mixed with Kalmia latifolia. They go excellently in harness together.



THE FINE RHODODENDRON CYNTHIA IN A TUB.



RHODODENDRONS IN THE MASS

SPECIMEN RHODODENDRONS.

Many a sheltered corner of the garden can be improved by one specimen rhododendron which grows by itself and is not crowded by other shrubs. Naturally, in this case a certain amount of care is necessary in order that it may look its best year after year. It will have to be mulched more frequently, so that it may absorb enough food to sustain its yearly blooms; while dead-heading must be seen to if it is to be uniformly floriferous and keep its shape. Probably the best rhododendrons for a specimen plant in an ordinary garden are the magnificent Pink Pearl, which still retains its well earned popularity; its near relative, Cynthia—there is little to choose between the two: the flowers in Pink Pearl are deeper in shade; Loder's White, with large trusses of the palest pink fading to pure white. Reds and crimsons should be avoided if the background is dark, unless the sun definitely strikes them and lights up the flowers. Among the best are two of the newer hybrids—Earl of Athlone, a vivid deep crimson that is particularly floriferous, and Britannia, lighter in colour but quicker growing. Two old Himalayan species are also magnificent—Thomsoni, with vivid scarlet bells, and Roylei, with coppery-crimson tubes. One of the accompanying illustrations shows a fine old specimen of the latter in a garden in Sussex. Both take longer to flower than the hybrids.

RHODODENDRONS IN CLUMPS.

Many gardens have fine clumps of old hybrid rhododendrons as among their most prized possessions. These are always better planted in banks than in circles, for in time to come, when they grow large, it is practically impossible to get into the inside of a circle to deadhead or remove old wood. For the first few years it will be necessary to mulch them well, but once they have grown to some size they will form their own mulch. In favourable districts, when the plants are to

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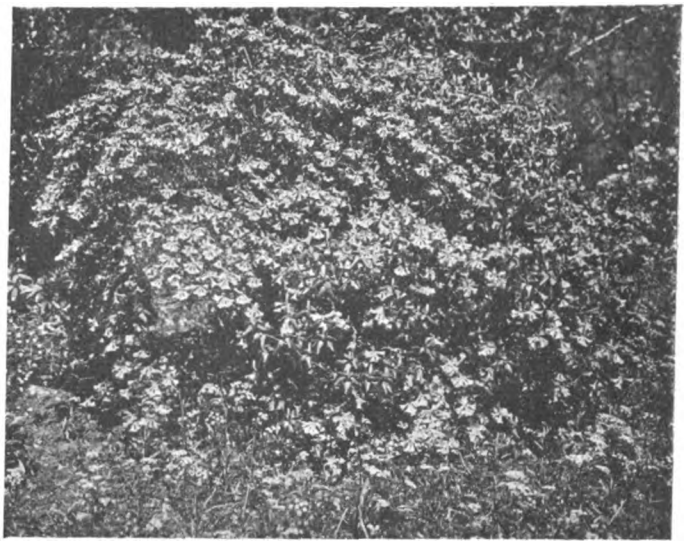
be allowed to grow to full size the choice of colours must be made with some care, for many fine clumps are spoiled by having one or two plants which clash horribly and so spoil the general effect. Whatever hybrids are chosen, they should not be those which are heavily blotched or speckled. The number of rhododendron hybrids suitable for massed planting, so that in time they will form a thicket, is legion. Mme. B. de Bruin (crimson), E. C. Stirling (white), Doncaster (a good deep crimson), Corona (various shades of pink), Duchess of Portland (white), Lady Eleanor Cathcart (rose with chocolate blotch), are all excellent. It must be remembered that, however tiresome it may be, deadheading always improves a rhododendron and increases its floriferousness.

Although many of the newer species are not suited for massed planting, yet there is one section, the triflorum, which is excellent for this purpose and should be more often seen in even the smallest garden. Yunnanense (pink), ambiguum (yellow), Augustinii (lilac blue), chartophyllum præcox (white) are all admirable plants that are generally found throughout the trade. They never grow very tall, are graceful in appearance, are among the most floriferous of all species, grow quickly and flower young. Of all species they are undoubtedly the most satisfactory for the average garden. They should be planted close—2–3ft. apart—and allowed to form a thicket, where year after year they will thrive and bloom with added vigour.

One of the illustrations shows a magnificent specimen of Cynthia in a tub, and this is a method of showing off their beauty that is worth trying, provided that you have a fair number of plants. The plant is lifted early in the year before the flower buds show signs of bursting, and after blooming is replanted again. I say, when there are a fair number of plants, for the plant is not improved by potting it in a tub and is often checked for a year; but for a veranda or a terrace there are few things so lovely as a rhododendron covered in a mass of bloom.

E. H. M. C.



AN OLD PLANT OF RHODODENDRON ROYLEI.

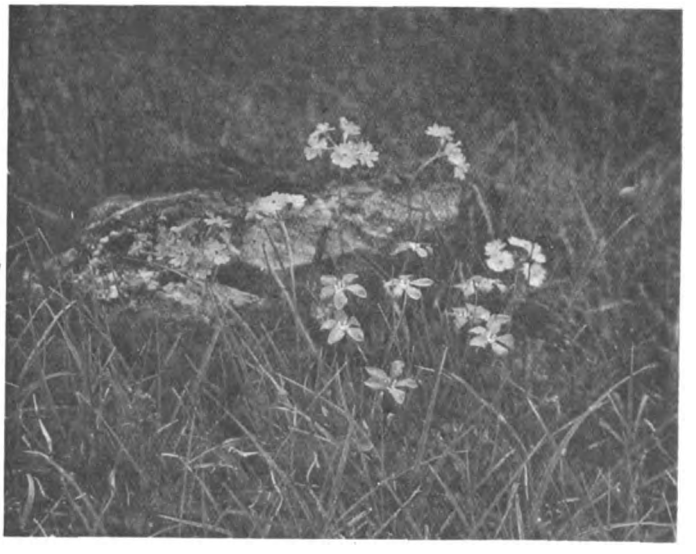
ALPINE BOGS

THE word bog has a sinister ring with us, it brings a picture before one's eyes of horses, huntsmen and hounds being slowly engulfed in a slimy morass, or perhaps a rash sportsman with a gun jumping from tuft to tuft, while the whole surface wobbles like a jelly under him. These sort of places I avoid, but the alpine bogs that hold my interest are lovely things, those where, at the high levels of 6,000 to 10,000ft. snow water rests awhile in its downward rush. Here we find treasures of the first order, orchis, primula, gentian, pinguicula and a host of others. Of orchis we find O. latifolia, with mottled leaves and sturdy spikes of speckled purple; Chamæorchis alpina, rather dull in flower, but an intrepid climber; also Gymnadenia conopsea, the gnat orchis, with spikes of smoky magenta flowers which sit on their stalks looking rather like little parrots with long tails. Nigritella angustifolia, the vanilla orchis, best of all terrestrial orchids, comes down to the edge of the bog and looks at it, but does not like getting its feet wet. Primula farinosa grows here in quantity, in fact, it is the predominant feature. I remember an alpine bog I saw a while ago twice the size of a polo ground, which was aflush with mauve P. farinosa, countless millions of flower heads. I always think there is something particularly dainty about this plant, with its powdered leaves and delicate flowers—it is distinctly feminine. In contrast to it, and close by, grows Bartsia alpina, a robber in brown and purple which, too lazy to make its own living, prefers to fasten on to the roots of its neighbours and live on the nourishment they gather.

Gentiana asclepiadea, the willow gentian, is here and there in patches, a giant among pygmies, for it stands quite 18ins. high and looks much like a Solomon's seal, but instead of small white flowers, it carries fine blue trumpets in pairs along the stem. The plant flowers late, after most of the others are over, and it is a puzzle to me how it ever ripens seed, for almost before its flowers are withered the autumn comes down on it with its blanket of snow. I suppose it must go on with the good work after it has gone to bed for the winter, and with the melting snow the seed is scattered.

A bright spot in the bog is Gentiana bavarica. This must be seen on a sunny day or its petals will be shut, but in sunshine they are dazzling blue—not more vivid than G. verna, because I hold that no blue can outrival it, but darker and quite as brilliant, which is the highest praise.

Of dwarf willows there is ample selection in the Alps, and most of them find their way to the bogs. They are attractive in spite of having no showy flowers to advertise them. It is my ambition some day to have a big collection of them. I am on the way to it already, and I find the more species one gets, the more their fascination seems to grow on one. They are fiends to put names to, because a new plant sometimes needs a season's observation before it will graciously display all the characteristics that go to determine its species. One of the most common in high bogs is Salix herbacea, which creeps flat on the ground and makes broad mats of woody turf. Salix cæsia, the alpine grey willow, is taller, about 3ft. high and grows where the water trickles. If one brushes its branches aside and looks at the ground beneath, one will often find a drift of Pyrola rotundifolia, like lilies of the valley. For those who would cultivate pyrola at home, my advice is, "Don't," It nearly always disappoints one. I have tried P. rotundifolia, P. secunda and P. uniflora, and all that remain unto me are the graves thereof. This is not quite correct—there



PRIMULA FARINOSA IN ASSOCIATION WITH GENTIANA BAVARICA IN AN ALPINE BOG AT SEVEN THOUSAND FEET.

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is one plant of P. secunda which has remained clothed in a single leaf for two years, but it has got so dirty that it must be dead by now; and I have some plants of P. rotundifolia in peaty sand in a frame, they have demanded such continual attention in opening and shutting their sunshades that I am tired of them.

But to come back to our bog. In the turf just outside the willows there is Parnassia palustris in quantity. This is a plant that always seems to satisfy the eye, the flowers are white with grey pencilling and the whole poise of the plant is graceful in the extreme. Pinguiculas grow close by the water in colonies, with funny little flat rosettes of sticky leaves spread to catch the gnats which they eat, but in spite of this nasty habit, they are dainty. The flowers rise on 3in. stalks and look like violets, hence the popular name of bog violets. The two species common are P. alpina, small and white, and P. vulgaris, a larger plant and purple. Both these are natives in this country, but they are rare except in hilly districts. There is another little friend in the bog which I like very much, Eriophorum Scheuchzeri, a cotton grass, not the E. angustifolium of the lower bogs, with its waving plumes; this is pretty, but the one I love is a little tufted chap like a small rabbit's tail on a thin wire 12ins. high. He comes right down to the water and likes to paddle with his feet well in it—and here he stands affable, erect, and if a wind blows he waves a welcome to you, "How-d'ye-do, must be darned hot down that valley where you come from," and, of course, you feel welcome at once.

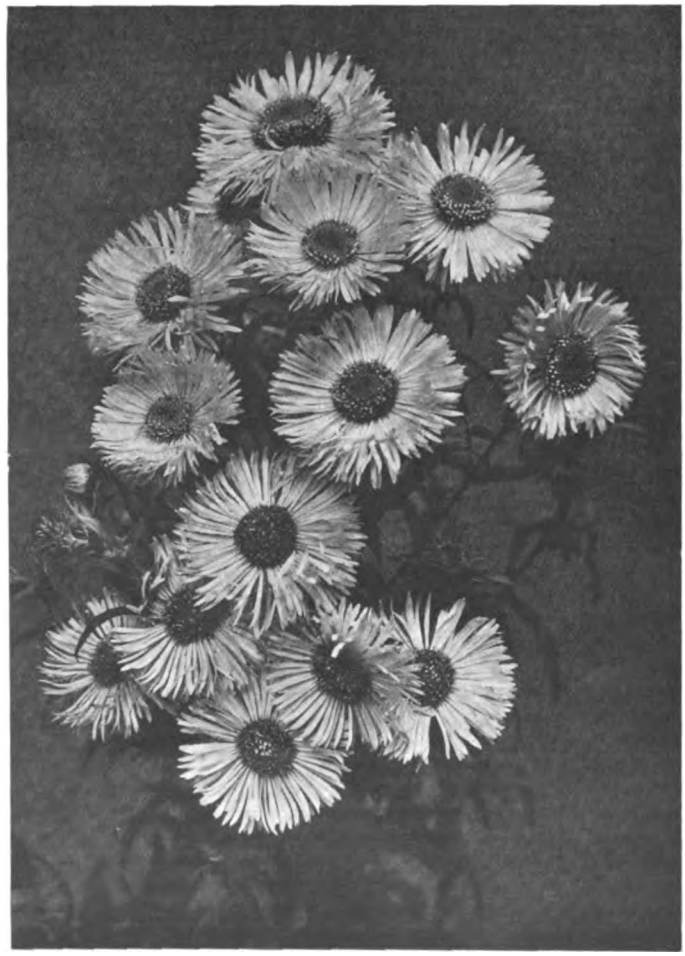
A. GAVIN JONES.

MICHAELMAS DAISIES—III

I HAVE been trying to make out when the name Michaelmas Daisy came into general use, and so far I have been unable to trace it beyond the 'fifties of last century. I am rather inclined to think that this may be the time when the old name starwort began to drop out of ordinary usage, as the newer name probably only gained a foothold when the family became more and more important occupants of our gardens. The time-shed must have been between 1840 and 1860. There is no mention of either China asters or starworts in Glenny's second edition of his "Properties of Flowers and Plants" (1859), which fact speaks volumes. It is of particular interest this late season to record that I have come across a suggestion that Christmas Daisies might be a good name!! I should have thought Martinmas would have overdone it, even in a very late year. But I must pass on to the immediate purpose of this "thirdly and lastly." It is to try to pick out from "The Rest" (that is all but the Amelluses and Novi Belgiis), some of the best. Compared with the Novi Belgii, the Novæ-Angliæ are a very small crowd. I doubt if there are many more than a baker's dozen in commerce, whereas, where is the man who will venture to make a guess at the number of the Novi Belgii? There are two big flies in the Novæ-Angliæ ointment. Many varieties keep closed in dull weather, and many will shut up when cut. Barr's Pink, a recent introduction, is free from these failings, and so is the richer and deeper-toned Miss Kate Broomhead. Personally, after the Amellus and Novi Belgii, I like the cordifolius section the best. How is it that I cannot find that truly magnificent variety, Edwin Beckett, in a single catalogue that has come this year? I bought it in the ordinary way. What has happened? It grows 5ft. high. It has fine big pale mauve flowers. It has a delightful free and easy habit. I cannot give it higher praise than to say, "it is as good as a Novi Belgii." After Edwin Beckett come Comeliness (an early flowerer), and Little Bo-Peep (a late flowerer). These two were raised at Aldenham, and I can hardly believe they have been allowed to remain there. "Full many a flower is born to blush unseen." Are these among them? And yet I know keen and discerning eyes must have seen them. Cheek-by-jowl with Ideal, Little Bo-Peep always seems to me to be the best.

I do not wonder that everyone lists the pretty little ericoides Delight. Among the white-flowered none can touch it. It is one of the earliest to bloom and does not grow more than about 2½ft. high. Twilight is my late-flowering favourite. It is so very white in a mass. Rosy is a pretty little pink variety, but I am not over keen about coloured ones; nor about the little vimineus type. These last are not sufficiently effective in a garden. Last year a kind neighbour gave me a very light looking variety which I am told is the white form of turbinellus. At all events, it is a striking plant, quite unlike any other in my collection. Nicholson in his "Dictionary of Gardening," calls it "A very desirable species." So it is. Its flowers look "all on wires." The pedicels are so thin and long, and the panicles themselves so sparsely set with branches. It makes a good show in the garden, but perhaps it is more useful for cutting, as fully developed sprays are just the thing for using in vases to give lightness to the almost rod-like inflorescences of Belgian Queen or White Climax. I began a bit off the line and I am ending in the same manner, by introducing two plants which ought not to be mentioned here. One is densus—or, to give it its full name, Novi Belgii densus—a low growing variety, which need not be staked, and which, I think, belongs to the era when it was considered the proper thing to give Latin names to garden varieties. Very likely it was in existence about 1900. I believe it is still catalogued by Mr. Amos Perry. Its utility was brought before me in an unmistakable manner when I visited Marbury Hall, near Whitchurch, Salop, this autumn. It is a favourite with Mrs. Poole and it was in evidence everywhere. The other interloper is the so-called yellow Michaelmas daisy, often listed when placed among them as "hybridus luteus." I fear it is a cuckoo. It is really a solidago—Solidago missouriensis, I am told, is its proper name. Anyhow, it is an exceedingly taking little fellow, with small canary-coloured flowers borne on stems of 4ft. high. It also makes a good cushion plant in vases with three or four spikes of a yellow Gladiolus primulinus like Souvenir, coming through it.

JOSEPH JACOB.



BARR'S PINK, A NOVÆ-ANGLIÆ OF EXCELLENT FORM.

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THE SOUTH AFRICAN WAND FLOWERS

FOR the gardening enthusiast, who likes to grow something uncommon and at the same time beautiful, the subject of this short article can be recommended. The wand flowers—or, to give them their proper name, Dierama pulcherrimum—are peculiarly graceful, the slender flower stems growing to a height of from 5ft. to 6ft., bearing beautiful bell-like flowers in varying shades of pink, deep red and claret. Though they may not be hardy in exposed situations, they certainly merit a trial, and for the possessor of a large border nothing more beautiful could be recommended. In the following notes I want to draw attention to a few of the splendid seedlings that have been named and recently placed on the market by the Donard Nursery Company, Newcastle, County Down.

Dierama pulcherrimum alba. — This beautiful white variety was one of the first to be selected and exhibited, and it obtained a well deserved award of merit from the R.H.S. In the early stages the flowers are tinged with pink, but this disappears as the blooms develop. It is one of the smaller-growing sorts and should certainly be included in a trial order.

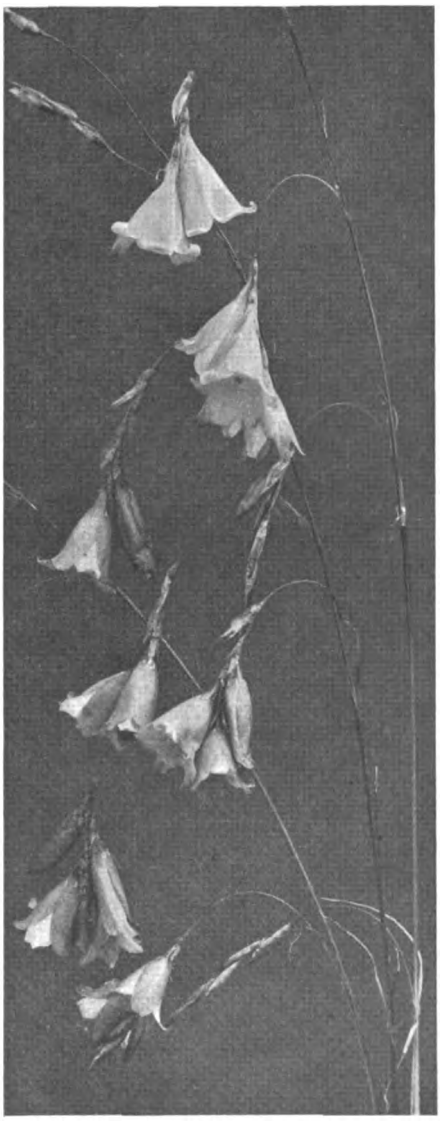
Heron.—This is, perhaps, my favourite to date, and its glorious rich wine red flowers carried on tall waving stems are undeniably striking and beautiful. The award of merit of the R.H.S. has also been obtained for this seedling, and I predict for it a great future.

Curlew.—This is another deep-coloured dierama, similar in shade but with more of a purple hue—bright reddish purple is the catalogue description, and it certainly conveys a very accurate idea of the colour.

Kingfisher.—This prettily named variety is probably about the best of the pinks and the colour is a very beautiful one. It got a unanimous award of merit at the R.H.S. on July 8th, 1924, and is about the largest flowered of the present range of seedlings.

Windhover. — Another attractively named sort and one that is robust and very free-flowering. The colour is a deep lilac-rose, and should prove very popular when better known.

Will o' the Wisp.—Appropriately named and of a pale shade of pink, the individual flowers are small but rather more freely carried than in the case of some of the other varieties.



WAND FLOWERS, GRACEFUL AND BELL-LIKE.

Magic Wand.—A delightful variety of a pretty art shade of pastel or lavender pink. This is another vigorous seedling, while the individual bells are very open in shape, which helps to give it a distinctive appearance.

Heatherbell.—One of the less expensive sorts, but nevertheless very charming and well worth a place in this select company. The flowers are a pretty shade of pink, flushed deep rose and are very effective when in full bloom.

This concludes the list of varieties to date, but there are other seedlings of great promise which, when placed upon the market, should help to make this uncommon and graceful race of plants more popular than is the case at present.

I will not attempt any cultural notes, for my experience of growing them is very limited; but, judging from their vigour of growth and the freedom with which they produce their flowers during July and August in the North of Ireland, where I have had many opportunities of studying them, they should, with ordinary care and attention, give satisfactory results in all but exposed districts.

In conclusion, I would suggest the following four varieties as about the choicest of those mentioned, and, in my opinion, they would make a good start for a collection, namely, (1) Kingfisher, (2) Heron, (3) Windhover and (4) Alba.

Of course, as is the case in selecting varieties in all other types of plants, tastes differ; but, after all, that is one of the charms of gardening, and it would indeed be dull and uninteresting if we all made the same roses, sweet peas, etc., our favourites.

I only hope that some readers of THE GARDEN may be encouraged to try their hand, and, if so, that success and much pleasure in the possession of an uncommon and at the same time delightful flower may result.

I should perhaps add that dieramas show to best advantage when grown in bold clumps or groups, and, in my opinion, it would be better to order, say, six or more of one variety than to try to include all the sorts mentioned. A very good mixed collection of unnamed seedlings, however, is offered, and this should appeal to those who like variety and are not particular about growing special sorts which are, naturally, rather more expensive. CECIL M. BAILEY.

NOTES OF THE WEEK

HELENIUMS.

THESE well known summer and autumn flowering herbaceous plants have long been grown to add to the brightness of the border with their gorgeous masses of yellow and golden brown flowers. With the advent of new and improved varieties this race of plants is still further increasing in popular esteem. They bloom from early summer to autumn until the frosts arrive.

For practical purposes they can be divided into two groups: those varieties that begin to flower in early summer and those that are purely autumn flowering. The earlier-flowering varieties are dwarfer in habit than those coming into bloom in the autumn, the former, being, as a rule, some 2ft. or 3ft. in height and the latter from 4ft. to 6ft. tall.

They are very accommodating plants and will produce excellent results in any reasonably good garden soil. Propagation is readily effected by division, shoots from plants divided in the autumn or spring making a good flowering clump the next season. Personally I find it a good plan to split up the old plants every other year when the herbaceous border is gone over and replant the best of the pieces some little distance apart. Not only are the flowers then of good quality, but, a point I consider to be of some importance, the stems produced are stronger, and staking is thereby reduced to a minimum. Those dwarf sorts that are worth growing should not require staking if this plan is adopted. Most of the taller-growing sorts need some assistance in this direction, however, where the situation is at all exposed, in order to withstand the heavy winds of autumn which have such a disastrous effect on plants top-heavy with flowers loaded with moisture.

If the earlier-flowering sorts are cut back and the spent flowers removed, they will go on flowering well into the autumn.

Of the dwarf sorts, Crimson Beauty is one of the finest yet raised; the flowers, which are of a brownish crimson colour, shading off into old gold as the season

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advances, are borne on stout, branching stems some 2ft. in height. This is a comparatively new introduction and is a valuable acquisition. It stands up particularly well against the onslaughts of wind and rain, far better than any other variety.

Another good dwarf sort is H. Bigelovii; the flowers of this variety are of a golden yellow colour. It is a very effective free-flowering sort of compact habit.

A particularly pleasing variety is July Sun. It is slightly taller than the two foregoing, but the stems are stout and erect. The individual flowers are bright yellow in colour, with dark centre.

Of the taller heleniums, Riverton Gem is a very good type. The flowers are of a terra-cotta tone, suffused with old gold. It is a good, robust grower, and one of the best sorts to grow. It is some 4ft. tall.

Where a rich warm tone is desired a very useful sort is H. autumnale rubrum. The flowers are deep crimson mahogany in colour, frequently shaded old gold. The flowers are of good size and the plant is about 4ft. tall.

Gartensonne is a good sturdy grower with strong stems, about 5ft. in height. The flowers are golden yellow in colour with velvety brown centres.—HOWARD H. CRANE.

THE TRESCO ABBEY GARDENS.

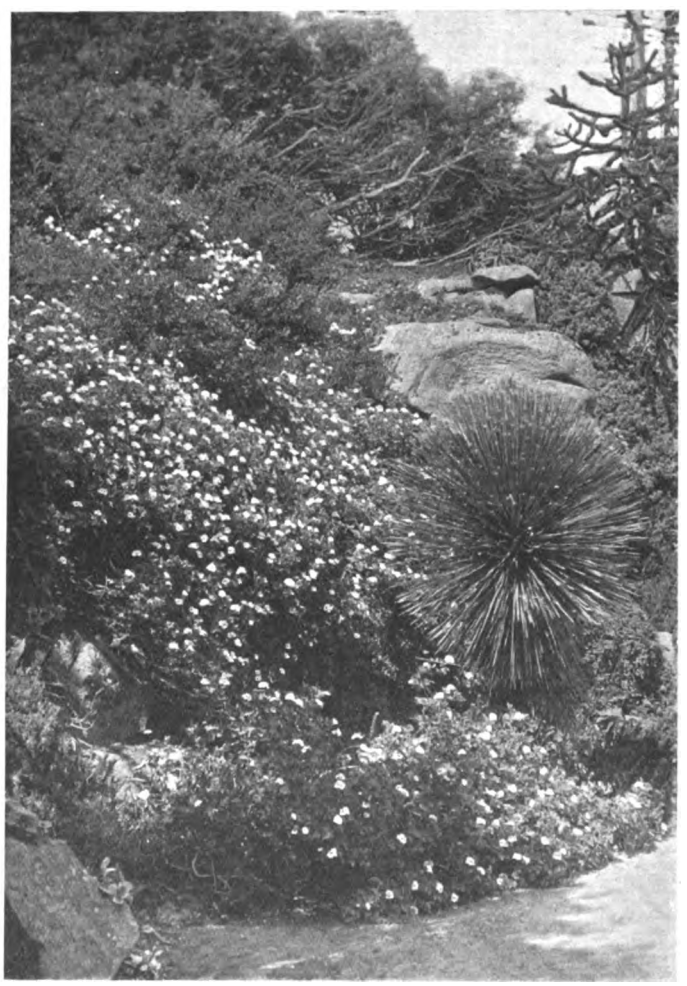
THE conditions obtaining on the Scilly Isles are not more favourable to plant growth than in other parts of the country, with the single exception of the mild winters experienced. Otherwise, we on the mainland have great advantages, in many ways. In the first place, the soil of Tresco is of a light, peaty nature, so shallow that big trees cannot securely anchor themselves. Again, very violent winds are experienced, such winds as we rarely encounter, and which tax to the utmost the skill of the cultivator in the provision of shelter. This point is impressed on my mind by a remark made by Major Dorrien-Smith. Pointing out a very pretty view, over a lake, through a break in the trees, he remarked, "Very pretty, but I do not like to see it because such a break can let the wind in."

The gardener, visiting the Scillies for the first time, experiences the greatest disappointment as he sails past the many rocky islands, bearing no vegetation but low, stunted gorse. As scenery it is grand, but interesting plant growth was expected. The fertile island of St. Mary's does not look exciting. One can see its slopes marked out into square fields, which grow early potatoes and bulbous flowers, but not a tree is visible. Nothing is, apparently, of greater stature than an arum.

As soon as Tresco island is sighted, however, hope again revives, for one catches a glimpse of the Abbey on the outskirts of an extensive wood, which stretches over the top of the slope. It is this wood that has made Tresco gardens possible, for it shelters from the rough winds all the exotics growing there. The wood is not native, but was made by planting Cupressus macrocarpa and Pinus insignis.

It is difficult to say what is the outstanding feature of Tresco gardens. Going through the rockery, with its large collection of mesembryanthemums, aloes and agaves, one would say succulents are the strong point. Then a walk through the collection of trees, shrubs and palms would cause a change of mind. Or a tour into the wood where gaps and clearings are filled with rhododendrons, acacias and eucalyptus in great variety, with large patches of arums in full flower in the boggy places causes one to consider whether any particular class of plants has been specialised in; apparently all phases of gardening and plant life are studied and cared for.

To give a list of the many interesting plants seen would probably interest few readers, but to mention that such plants and trees as Howea palms, Araucaria excelsa, Cinnamomum Camphora, Cordyline australis, Metrosideros spp., Phœnix canariensis, Aloe spp., Dracæna Draco, Fuchsia spp., Agave spp. and tree ferns are to be seen as large, full grown specimens, will give an idea of the vegetation. Of Cape pelargoniums, mesembryanthemums, eucalyptus and acacias, innumerable species are grown. Of particular interest to one who has seen them growing in their native habitat were Lobelia Gibberroa, the African tree lobelia, and Sparmannia africana. Both are flourishing at Tresco in a manner quite unexpected. It really is difficult to say what will, or will not, grow there. The Nyassaland cedar, Widdringtonia Whytei, is represented by quite a fine specimen. Attempts to grow this tree in Natal were not nearly so successful and Pietermaritzburg Botanic Gardens cannot show such a fine tree as Tresco. After seeing Sparmannia africana and Phœnix canariensis both growing as luxuriantly as they do in their native home, it would appear as if most plants are worth trying.



A CORNER IN THE ROCKERY, WITH PELARGONIUMS IN FLOWER, AT TRESCO ABBEY GARDENS.

My visit, in May, was too early to see the gardens in their greatest glory. The metrosideros, crassulas, mesembryanthemums, tigridias and hosts of other plants were not in full flower, but the gardens were still gay with large clumps of pelargoniums, sedums, cinerarias, arctotis, watsonia, lithospermum, bomaria, habrothamnus and many another plant and shrub not to be seen in the open air in this country.

A noteworthy plant, not in Tresco gardens, but on the estate, is Bougainvillea Sanderiana. It covers the front of a cottage, and, I was informed, flowers very finely. It certainly made growths several feet long last year. It is probably the only bougainvillea flourishing in the open in northern Europe. It provided another of those surprises of which Tresco seemed so full.

As would be expected of a plant enthusiast such as Major Dorrien-Smith, visitors to the gardens are welcomed, and notices to this effect are posted up on the island. Many will go away from these gardens with grateful thanks to Major Dorrien-Smith for giving them the opportunity of seeing what the Tropics are like, for a very real idea can be obtained there.—E. BROWN.

GERMINATION OF SEEDS OF ARCTOSTAPHYLLOS PUNGENS.

HAVING tried unsuccessfully to raise plants from seed of this shrub in the ordinary way, I took the hint which Mr. Bean gives in his book on "Trees and Shrubs," and dividing the packet of seeds into four equal portions, boiled them for five, fifteen, thirty and sixty seconds respectively, but after twenty months this seed still remains dormant, although it looks quite good. I managed with great difficulty to open one of these seeds and the flesh is still white and firm.

In February of this year I sowed fresh seed again, but placed the pot in a very warm greenhouse, but after six months nothing had happened and needing a pot of similar soil quickly for seed of Gaultheria pyroloides, I placed the pot containing the seeds of Arctostaphyllos in the oven with the idea of killing the moss spores, etc., and forgot all about them until I was reminded almost three hours after. Naturally I thought everything would be killed, seeds included, but I sowed the seed of gaultheria on the top of the well baked soil (after it was cold, of course), and now, after two months, I am rewarded, for both of them are germinating freely.

I do not know what the temperature of the oven was, but I know that a rice pudding was cooked in the compartment above during the time the pot occupied the oven. —B. LEACH, *Headley, Epsom.*

A FINE CLEMATIS.

THE enclosed photograph shows Clematis Fargesii growing in my garden in Perthshire. This species is a native of western Szechuan, growing at an altitude of about 9,000ft. It was collected by Wilson in 1910, and is a strong climber 9ft. to 18ft. high.

This species differs from the others in the group in the inflorescence, which is reduced to one or three large flowers; but the flowers, even when solitary, are always

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CLEMATIS FARGESII IN PERTHSHIRE.

borne in the distinct peduncles in the axils of the leaves of young branches. This handsome clematis is not common and is always found in the woodlands of its native habitat. The flowers are white, 1½ins. across and very pretty.

This species is quite hardy, more so than C. montana, which with me gets killed during a hard winter. It is an extraordinarily free bloomer, coming into flower in June and continuing till the end of October.—A. HARLEY.

KNIPHOFIAS.

THESE very effective hardy border flowers, formerly known as tritomas and commonly called torch lilies and red-hot pokers, are being planted more extensively every year. From July to November there are three subjects, that, planted singly or in the mass, according to the space available, always appeal to me, namely: Prunus Pissardii, pampas grass and the kniphofia. The rich foliage, the stately plumes and the striking spikes respectively, combine to make a very fine display, which remains effective for a considerable time. But I wish to refer more especially now to the kniphofia. Those who love these flowers and wish to grow them, but do not understand the behaviour of the plants, may think it necessary to plant them during this autumn period. In certain circumstances they may be planted in the autumn, but care should be taken throughout the winter to protect the roots in the loosened soil from severe frosts, by placing a good layer of dry litter around each specimen and close up to the leaves. If the time can be chosen, then do the planting in the spring in duly prepared ground. With some gardeners it is a duty never to be shirked to trim off the outer leaves of plants in the borders in the autumn and early winter time to make all look tidy. In the case of numerous kinds of plants this is a very necessary work, but in that of the kniphofia it is wrong to cut off more of any leaf than, it may be, the dead portion. Retain all the sound foliage possible whether on established or newly-planted specimens.

The best soil for these plants is one well drained and of a light loamy nature, although I have grown them fairly successfully in an almost pure clay, and in this medium the plants bore very highly coloured flowers. Since the early days of the old variety, K. Uvaria, with its scarlet flower spikes, we have had, especially of late, a succession of new sorts from self yellows to buff yellow and scarlet and orange combinations, and the height ranges from 2ft. to 7ft. Thus we see how easy it is to arrange the plants suitably in a border, singly or in clumps or in separate beds. For a small border, rufa, yellow spikes, tipped red; Macowani, orange-scarlet; Goldelse Improved, yellow self; Buttercup, golden yellow self; and Prince of Orange, rich orange flowers, with Empress, red, all under 3ft. in height, will never be out of place. For the back of a large border perhaps multiflora, sulphur and 7ft. high, is the tallest-growing variety, and there are lovely sorts intermediate in height.—G. G.

A REMARKABLE FRUIT.

THE singularly constructed fruit here illustrated is that of a plant called Proboscidea altheifolia, which grows wild in the deserts of northern Peru. The genus is closely related to martynia, two or three species of which are occasionally grown in gardens as annuals. In its younger state the fruit is a kind of spindle-shaped pod with two horns. As it ripens it splits open and these horns become reflexed and curved inwards, thus revealing two smaller, decurved horns in the centre. The horns have sharp, hard points and measure 3ins. to 4ins. in length.

There is no doubt that this remarkable structure is a provision to assist in the dispersal of the seeds of the plant, one of the most elaborate of the various plans nature adopts. The curved horns catch hold of the hairy coats of animals or may even clasp their legs and are thus transported considerable distances before becoming detached—dropping seeds by the way.—W. J. B.

FRUIT OF PROBOSCIDEA ALTHEIFOLIA.

THE DABŒCIAS.

THE Irish, or St. Dabeoc's heath, is an exceedingly beautiful family of dwarf ericaceous shrubs, valuable for planting in quantity where the ground is comparatively free from lime. In nurseries the name of Menziesia polifolia is more often favoured, though according to the rules of priority, the name Dabœcia polifolia is the correct one.

Mature plants form evergreen spreading dwarf shrubs up to 2 feet high with age, and as much or more in diameter. They are among the most floriferous and charming dwarf shrubs we possess, for the season of flowering extends from June to November, with a particularly showy period during August and September.

There are several varieties in addition to the type, which has rosy purple blossoms: alba, pure white; alba globosa, dainty globular white flowers, plants of more upright habit; bicolor, white and purple; and atropurpurea, red-purple flowers and dark foliage.

The dabœcias are readily propagated by seeds, cuttings and layering. It improves the habit of the plants, and they last many more years in good condition, when the old flower spikes and long ends of the previous year's growth are trimmed off with shears early in the year, before new growth begins.

Lawn beds of the Irish or Connemara heath are very effective, but one is inclined to enthuse most in favour of planting in large informal groups on sloping ground in the pleasure grounds, sometimes in colour groups with others in mixture.

The dabœcias are found in a wild state in western Europe (western France, Spain, Portugal, the Azores) and Connemara, Ireland.—A. O.

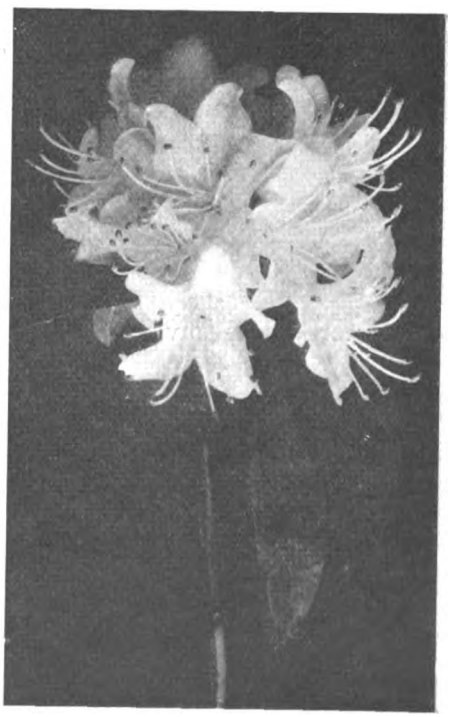
RHODODENDRON HORMOPHORUM.

BALF. F. ET FORREST.*

RHODODENDRON hormophorum is one of the many rhododendrons introduced in recent years from China by Mr. G. Forrest. It is one of the triflorum series which, from a horticultural point of view, may be described in general terms as a dwarf R. yunnanense.

Sir Isaac Bayley Balfour, commenting on the species in the Notes of the Royal Botanic Garden, Edinburgh, says, "It is a plant the habit of which is in consonance with its described habitat—dry stony alpine pastures. Its stem appears to ramify in the soil under the stones, rooting and forming crowns from which short aerial shoots ascend, bare below and producing small tufts of leaves and trusses of flowers at the top. The community of such plants must form a scrub about a foot and a half high after the fashion of old heather on a moor. As a plant of cultivation, R. hormophorum is likely to prove hardy, but does not give evidence of greater or less attractiveness than many others of its Series." This estimate, based on the collectors dried specimens, has proved an accurate one. The plants I have seen in cultivation have a somewhat "leggy" habit. Most of the leaves formed in the preceding year fall before or when flowering commences, with the result that at the time of flowering we have almost bare shoots crowned with flower trusses and short new growths of immature foliage, with, perhaps, a few of the leaves of the preceding year persisting below the flower trusses.

This defoliation notwithstanding, R. hormophorum may prove to be a desirable form



A FLOWER TRUSS OF R. HORMOPHORUM

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for small gardens and for particular situations if it retains in cultivation the low stature of the wild plant. The flower truss is not inferior to some forms of R. yunnanense, and the flowers individually have the graceful form characteristic of its allies: an open corolla, azalea-like in shape, with protruding and curved stamens and style. The flower colour varies from a light pink to a deeper rose or rose-lavender, and the posterior part of the wide tube is spotted on the inside with olive-brown or maroon dots, after the manner of R. yunnanense.

In the description referred to below* it is pointed out that, apart from dwarfness, the species is distinguished from cognate forms by the whitish disc-like peltate scales about equally distributed on the upper and under surfaces of the leaves, and that the calyx provides a diagnostic mark which is utilised for the name of the species. This mark is the presence of "white peltate scales disposed close-set along the rim of the lobes (of the calyx) forming a white necklace-like band around the base of the corolla." The feature is a minor one, but all the flowers of plants of R. hormophorum that I have examined, flowers of plants in cultivation and those on the Chinese gatherings also, possess this feature. It appears to be a constant and diagnostic mark separating the form R. hormophorum from the typical R. yunnanense.

R. hormophorum was discovered by Mr. G. Forrest in 1918 (Forrest No. 16265) on the Muli Mountains in south-western Szechuan and was again gathered by him in 1921 in the same area (Forrest No. 16816), and also farther south on the mountains east of Yung-ning (Forrest No. 20485) at elevations ranging from 10,000ft. to 12,000ft.

A single plant flowered at the Edinburgh Royal Botanic Garden in 1924 under the Forrest No. 16816. This year, under the same number, a second plant flowered; and at Edinburgh and elsewhere plants have flowered this year under the Forrest No. 20485.

*R. hormophorum, Balf. f. et Forrest, in Notes from the Royal Botanic Garden, Edinburgh, Vol. XII (1920), page 117.—H. F. TAGG.

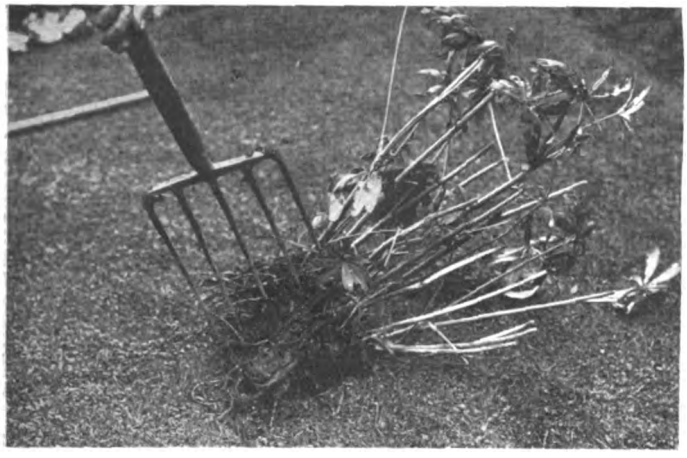
THE PROPAGATION OF HERBACEOUS PLANTS

HARDY herbaceous plants may be propagated in many ways, and at different times of the year. The principal methods employed are by means of seeds, cuttings, layers, offsets, bulbs, tubers, runners and division of the plant or rootstock.

Propagation by means of seeds is the most natural method of increase, and the one by which the majority of plants reproduce their kind more or less true to type, except where the flowers have been subject to cross fertilisation by the pollen of other species. Where exact counterparts of plants cannot be ensured by raising from seeds, there are generally other methods which can be applied: as by the insertion of cuttings, or the division of the plant. The great majority of annuals must, of necessity, be propagated from seeds, as the plants generally die after flowering and ripening their fruits.

The conditions requisite for raising plants from seeds, are the proper ripening of the latter, their careful preservation till they are sown—so as to ensure the retention of all germinative properties—and their insertion in the soil at the proper time under conditions suitable for their development. Some seeds, like those of many of the umbelliferæ, even when perfectly matured, retain their germinative powers for but a comparatively short time; while others, like those of some leguminosæ, kept under favourable conditions, retain their vitality for some years.

One of the chief considerations in sowing is to choose the time so that the young plants shall appear above ground at a season suitable for their after development. Tender annuals that will not stand cold must be sown in a little heat in spring, or outside in April or May. Hardy annuals may be sown outside, where they are to flower, in March, or some do better if sown in the previous September. In the latter case they make good plants before winter, and come into flower earlier than the spring-sown ones. Seeds of plants that are biennial—that is, do not flower until the second year—require sowing before or soon after midsummer, a season favourable for germination, and one which allows the plants to become established before winter. The best method of sowing seeds outside, and the one generally practised, is that of sowing in drills. This affords more convenient opportunities of cleaning and thinning the seedlings than when the seeds are sown broadcast. Under glass, pans or pots may be used, but the drainage must be good, and the soil light and sandy. In sowing seeds care must be taken that they are not covered too deeply. A good rule is that of covering seeds, when sowing, with an amount of soil equal to their own depth. If seeds were very small, and covered deeply with soil, in all probability the plants would perish before reaching the surface. When once the seeds are sown, the soil in the seed pots should never be allowed to get dry. It is a good plan to keep them covered with paper or other covering till the seeds germinate.



THE METHOD OF DIVISION BY MEANS OF A FORK

A CLUMP OF LUPINS DIVIDED AND READY FOR PLANTING.

Propagation by means of cuttings is, perhaps, one of the most useful methods. Nearly all alpine plants can be increased in this way during the summer months. Inserted round the edge of a pot in sandy soil, and kept in a close frame, they soon root. As soon as they are rooted and commence growing, the cuttings can be potted off separately into small pots, kept growing in a close frame for a time and then hardened off gradually. Some cuttings emit roots from almost any part of the stem, while others need a joint or heel, and preparation of an exact nature to ensure the emission of roots.

One of the easiest methods of increase is by means of division of the plant, when it consists of many crowns or growing points. This can be done in the autumn or early spring. The whole plant is taken up, and pulled apart by hand, or with two forks, not cut by a spade. For replanting, select the stronger crowns, which are generally found on the outer edge of the plant. As these divisions are all provided with roots, they soon become established when planted firmly.

Offsets, tubers, bulbs and corms are formed, in some cases, on the stems of the plants which bear them, but more generally about their roots. When they are produced, an easy method of propagation is effected by separating, or lifting them, when the old plants ripen and their tops decay. Tubers admit of being cut into several pieces, each of which will eventually form another plant if it is provided with a good eye or bud. The potato is an example of this, while in the crocus the young corms are formed in quantity round about the old one. These can be

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Michaelmas Daisies ready for division and re-planting.

The individual portions, which are too large, are here planted too close together.

The correct procedure to follow with portions of small size; each is given ample space.

lifted when ripe, separated and planted out singly in lines in a nursery bed or frame, till they are large enough to plant out in their permanent quarters. Runners, as in the case of the strawberry, provide an easy means of increase. These are lifted, when rooted, and planted out in rows where they are to flower and fruit. Propagation by means of root cuttings can be carried out with many plants, like Anchusa italica, Morisia hypogæa, and many cruciferæ. In the autumn the plants are lifted, when the larger roots are selected and cut into lengths of two or three inches. These are put into sandy soil in pots, or a bed in a cold frame, or even outside. In the spring, buds are developed and fresh roots produced, resulting in good plants which will often produce flowers the following summer.

All cuttings should be selected from healthy plants, and it is very important when inserting, that the base should be placed in contact with the soil. The soil should be made firm round the cutting, as many failures result from loose planting. W. I.

THE PRUNING OF FRUIT TREES

A VERY prevalent but very fallacious idea is that every fruit tree requires pruning annually. Many people would consider it madness to plant a young fruit tree and leave it unpruned; oftentimes the folly lies in pruning it. The general rule is that a fruit tree is better left unpruned the season it is transplanted. The principal branches and strong young growths should be left intact until the roots have had a year in which to establish themselves, while any weak twiggy growths should be removed.

Another frequent error is to suppose that when a young tree makes a great amount of strong young growth the obvious method of checking it and hastening the development of fruit buds is to prune it hard. That is precisely the way to induce an even stronger growth of wood, and hinder instead of help the formation of the desired fruit buds.

A young tree that makes but little growth is the tree that requires the knife, and provided the tree is healthy and comfortable at the root, severe pruning will usually rouse it from its lethargy and start it into satisfactory growth.

Impatience to see a young tree bearing fruit is the greatest stumbling block when the owner of such trees that have been planted a year approaches them with the knife. In all probability many fruit buds have formed on the upper portions of the two year old wood, but, nevertheless, these must be sacrificed for the sake of the future fruit production. Disinclination to heed such advice is strengthened by the knowledge that a friend's trees carried a fine crop the second year after planting, and that even the nurseryman, when he supplied the trees, was strong in his assurance that they would fruit well the second year. Both these contentions may be literally true, but the important fact is that in produing those first fruits the development of the tree is jeopardised in a manner that will be dearly paid for in years to come. The young tree that carries fruit before it has developed the framework of a good, sturdy, well balanced tree must pay the penalty in stunted development and crippled physique.

Much importance attaches to the precise point at which a branch is cut at this first pruning of newly established trees, for bear in mind the object in view is to promote the growth of the permanent and principal main branches. The stereotyped instruction on this point is to cut to an outward-pointing bud. Careful examination of a young branch will reveal the fact that the bud immediately below the outward-pointing bud points directly inward to the centre of the tree, and when, as a result of pruning, this bud produces a shoot, it will have to be removed, to keep the centre of the tree open. That means only one young shoot is preserved, and there is no increase in the number of main branches formed. Further search along the branch to be pruned will discover a point where two buds, quite close together, both point in an outward direction, and if the growth is cut clean immediately above those two buds both will produce shoots, growing outward and in diagonally opposite directions, like the limbs of the letter "V." Thus may the number of main branches be increased to anything up to double their original number. In any later pruning for extension, when the number of branches requires no further multiplication, it will be quite correct to prune to a single outside bud. The varying details of pruning trees of different varieties and varying ages would fill a volume, but in the main it is safe to assume that a slow-growing tree may be severely pruned, and one that makes vigorous growth should be very lightly pruned. It is a good plan, when trees of five or six years of age are still making an abundance of wood, to leave the leaders of all the main branches untouched, shortening back only the lateral growths. In the case of older trees it is more often than not of greater importance to use the saw on crowded branches than to use the knife on young wood, and the trees that have been systematically pruned for a number of years are sooner or later bound to require judicious thinning of overgrown spurs.

The knife is mentioned from force of habit, but, true as it may have been in time past that it was the only tool with which a tree could be properly cut, there is no sound reason to-day why secateurs should not be used so long as they are of the very best quality and modern pattern. The fault of the antiquated patterns of secateurs was that they jammed and bruised the bark and wood; but the best makes to-day have keen, double-cutting edges and can do their work as cleanly and very much quicker than the knife, and there is far less risk of accident in the way of cutting more than was intended.

Many people who make a fairly good job of pruning a bush or standard apple tree are less comfortable when operating on cordons, and he makes a mistake who prunes his plum trees precisely as he prunes his apples. The plum, where it is happy, usually requires very little inducement to make wood; frequently it is more desirable to check the tendency to make too much. To cut back vigorous leading shoots simply induces greater vigour. Open out crowded portions of the tree, but otherwise cut as little as possible until the exuberance tones down. Fruit will usually be borne the sooner for this treatment. The laterals of cordon trained trees should be pinched back in summer; from the latter end of July onwards, doing little and often,

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rather than making too drastic a reduction of foliage at one time. The winter pruning will then consist of cutting the shortened growths farther back—to growth buds in very young, undeveloped trees, and to plump fruit buds in mature trees. The life of cordons may be considerably prolonged by periodical thinning of crowded fruit spurs, and encouragement of new buds in convenient positions. A final warning may well be to beware of starting to prune while a few leaves still remain upon the tree. This is one of the tasks for which an early start is of no advantage. It is unwise to prune during periods of actual frost; but while trees remain dormant any spell of open weather is the right time for pruning.

A. J. MACSELF.

ANNUALS: AUTUMN SOWN *v.* SPRING SOWN

AN annual is a plant which completes its life-cycle within a year. By common practice "within a year" is interpreted to mean between January and December, but the observant have long since discovered that in the wild state the majority of annuals start their new year immediately after ripening seed.

Nature is very wise, and the cultivator who follows her lead is prudent, and it has been abundantly proved that autumn sown seeds of annuals produce more robust and more prolific plants than those sown in spring.

That statement may require the qualifying remark that the greater success is dependent upon judicious care of the young plants during winter.

Failures occur, but investigation sometimes discovers that neglect allows the seedlings to fall victims to natural enemies, and in other instances, coddling and nursing are carried to an extent that undermines the constitution and stifles the plants into sickness.

Many hardy annuals should be sown in the open, but date of sowing and selection of situation are points of more than trifling importance. It is easily possible to sow too early, especially where the seed bed is on rich soil, which is conducive to soft, sappy growth.

Small seedlings of hard, wiry growth will endure the rigours of winter far better than bigger, softer plants of the same kinds. For the most part outdoor sowing should take place in September, but in some seasons seeds of Shirley poppies, calendulas, sweet alyssum or larkspurs may be sown on a border with a western exposure as late as mid-October and the seedlings, although quite small, survive the winter and make rapid headway in spring.

Late in October hardy annuals may still be sown in frames, but the lights should seldom be closed, and the more air the seedlings are allowed to enjoy on favourable days the sturdier and healthier the plants will be. It is a great mistake, even in winter, to keep hardy annuals in heated pits or greenhouses. When seeds are sown too early the question of pricking out becomes a problem. Often the seedlings become large enough, and being somewhat crowded, appear to require pricking out, but they make fresh root very slowly after disturbance in late autumn, and it is usually wiser to thin crowded patches and leave the remainder undisturbed until spring, when they may be transplanted with a trowel direct to flowering quarters. In some specially favoured southern gardens August sown seeds will germinate rapidly and be ready for transplanting by the beginning of October, making quite large plants, which in their sheltered situations will pass safely through winter and, of course, bloom very early next season.

Half hardy and tender annuals as well as the perfectly hardy kinds may, with advantage, be sown in autumn, in their case, necessarily, a greenhouse or pit which can be heated to exclude frost, being essential. Even with these, however, a close, stuffy atmosphere should be carefully avoided; ventilation should be free except in very bad weather, and artificial heat should be but sparingly allowed. October is quite a good month for sowing many of these seeds, and as growth may be steadily maintained throughout winter, the seedlings should be first pricked out, and then potted singly to produce strong, bushy plants for early flowering.

Cosmos is never so completely satisfactory as when treated in this manner. The customary drawback to the deserved popularity of this most charming flower is that its full display is made so late in the season that cold nights, drizzling rains and smutty fogs disfigure most of the flowers, but by sowing in October and potting twice, fine big plants may be secured which are ready to produce buds by the time they may be bedded out in spring. Each plant which has been well grown in a 48-sized pot, will fully cover a circle of 4ft. in diameter a few weeks after bedding, and the amount of elegant flowers for cutting, such plants will provide, in addition to a grand garden display, is truly remarkable.

Clarkias, godetias, nemesias, and a whole host of highly decorative annuals may be similarly treated with gratifying results, but always remember the shelves near the glass in the cooler, freely ventilated houses will afford more suitable winter accommodation for these seedlings than the closer atmosphere of a warm house.

Excellent plants of Kochia tricophylla may be produced from seeds sown at this season, and the useful climbing plants, such as Cobæa scandens, Eccremocarpus scaber and Mina lobata, usually sown in heat in February are much more satisfactory if sown in October and grown steadily along in a cool temperature.

The new Salvia splendens Harbinger has proved a suitable subject for autumn sowing. Watchful care is necessary to keep the seedlings just gently moving without any incitement to run away into soft, spindly growth, but although until January or February the seedlings are preferably kept small, the fact that they have made root is sufficient to ensure rapid development as soon as early spring days bring sunshine and a naturally buoyant atmosphere.

The remarkable thing about autumn sown annuals as compared with spring sown is that while they commence to bloom much earlier they attain such strength and development that the quantity of bloom is enormously increased, and so long as some pruning is indulged in, and removal of faded flowers and seed pods is regularly attended to, the autumn sown are quite capable of outlasting the spring sown, many of which begin to bloom before they have built up a strong enough framework to endure sustained effort. It is not too much to say that where the culture of annuals is confined entirely to spring sown seedlings the full capabilities of the best of them are seldom if ever realised.

L. I. ATRIS.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

All communications should be addressed to the Service Department, THE GARDEN, 20, Tavistock Street, Covent Garden, London, W.C.2

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CORRESPONDENCE

RED SAGE.

SIR,—Can any of your correspondents give any information about "Red Sage"? What the actual plant is, or where found? It was mentioned in the *Spectator* a little while ago as having great healing properties in cases of whooping cough, but I can ascertain nothing about its identity.—W. OSWALD WAIT.

FLOWERS FOR AN EGYPTIAN GARDEN.

SIR,—I send the following notes in the hope that they may help your correspondent, "A. B." who writes "An Enquiry" in your number of October 24th, about gardening in the desert suburbs of Cairo.

If expense is of no great object, it will pay her to cart in considerable quantities of Nile silt, which can readily be obtained from the Towns and Building Department of the Public Works, when canals are cleared in the winter. The cost of the mud is negligible, but carting such a distance from the naturally cultivated area must prove expensive. If plenty of this fertile mud is added to the sand, nearly all annuals, hardy and half-hardy, can be grown, also glorious roses and chrysanthemums, *not* herbaceous plants, as a general rule. If economy has to be studied it will be wise not to attempt to grow roses, which must have a fairly heavy soil.

Such plants as antirrhinums are always grown as annuals and these and the true annuals are planted in seed pans in the shade in June, July and August, to flower in February March and April. It is better to buy Christmas or early-flowering sweet peas, as these plants take so long to reach maturity that by the time the ordinary sorts come into flower the heat is too great for them and the plants collapse.

All the small annuals should be pricked out into pots and grown on in them to such a size that when transferred to the open ground they are not overpowered and smothered by the nutritious chocolate-coloured flood water. Egyptian gardeners love the pernickety work of pricking out, which allows them to squat for hours in some shady corner of the garden.

It is possible to have successful gardens right out in the desert, where the flowers grow in a medium of pure sand with old horse manure mixed in, provided that the water supply has its origin in Father Nile and does not come from the hard heart of a desert well. In such a garden the sturdiest of the annuals should be grown, such as sunflowers, coreopsis, zinnias, stocks and marigolds. Geraniums, cinerarias, freesias and chrysanthemums could be grown around the house in pots, with a little special soil.

There are many wonderful and accommodating sub-tropical flowering shrubs and creepers, many of which are almost too rampant and should be planted with care. The Agricultural Department in Cairo are ever ready to give advice to amateurs and to sell a percentage of their trees and shrubs, and there is a very excellent horticultural society, or was in 1922, whose members are always ready to lend a helping hand. I would suggest that your correspondent should start her garden with such plants as she can obtain locally and supplement this later with others from England.

Roses in Egypt always flourish best budded upon the native stock, a trailing, white-flowered rose called "sebawi," which can be grown from cuttings with great ease and certainty. Many native gardeners know how to bud, and friends will generally supply buds of a few good sorts, with which to make a start. The reason that I advocate this somewhat unusual method of laying the foundation of a rose garden is that the authorities open all cases of roses and other plants in the Customs House and fumigate them for fear of introducing pests, and after their attentions it sometimes happens that the poor roses give up the ghost. I should like to recommend as a guide to gardening in Egypt, "A Book on Gardening in the Subtropics," by Mary Stout and Madeline Agar, publishers, H. F. and G. Witherby, 326, High Holborn, W.C. This was brought out in 1921, but I know that it is still easily obtainable for I saw a copy of it in the book shelves at the Army and Navy Stores a month ago.—D. H. M.

ROMNEYA TRICHOCALYX.

SIR,—The enclosed photograph of Romneya trichocalyx may perhaps be of interest to some of the readers of THE GARDEN, to see how well it grows here in the Midlands. The original plant I grew from seed obtained from the Royal Horticultural Society about seven or eight years ago, and it has increased enormously by suckers which come up in every direction. Last winter I never even cut down the growths, and they remained untouched by frost.—LADY BEATRIX STANLEY, *Market Harborough.*

CALIFORNIAN POPPIES IN A MIDLAND GARDEN.

SOME LINUMS.

SIR,—In 1924 a plant of the dwarf Linum salsoloides nanum, "E. E. T.'s" desideratum, was obtained from Maurice Prichard's nurseries. It has flowered quite well the two summers that I have had it. It grows slowly and is only a small plant as yet. It is quite prostrate and creeping over the ground. Farrer's description and plate are quite good and fit my plant, excepting that my flowers are not "an unending succession"; perhaps they might be if the faded flowers were taken off. A little seed ripened in 1924, and much more this summer. It is in very poor, sandy, gritty soil, fully exposed to the south.

The plant to me is more like a prostrate dwarf L. suffruticosum than my L. salsoloides.

In June, 1924, L. suffruticosum was very plentiful in a locality at the east end of the Sierra Nevada at an altitude of about 5,000ft. and very lovely it was with its white (not snow white) flowers with black eyes (due to purple base to petals), profusely produced, large and wide open in the hot sunny days, closing up early in the afternoon. The plants were stiff, shrubby, twisted and quite dwarf, the flowers being on stems of about 6ins. Unfortunately, I was too early to obtain ripened seed.

My L. salsoloides was raised from seed some years ago, and is much larger and spreads out more than I care about. It has somewhat similar white flowers with smaller petals and on longer stems.

When visiting the late E. C. Buxton's delightful garden at Bettws-y-Coed in 1923, he kindly allowed me to take seed of a lovely white-flowered linum which I understood him to say had been brought by a friend from the south of Italy and which he had not been able to identify. It is an upright-growing plant with greenish (tending to glaucous) lanceolate acuminate alternate leaves and beautiful white terminal flowers; it is about 9ins. high at present, neat in habit, not a sprawler by any means, and—so far, at any rate—not a nuisance.—T. ASHTON LOFTHOUSE, *Middlesbrough.*

WINDOLITE.

SIR,—Referring to the note on Windolite, a substitute for glass, which appeared in THE GARDEN, October 17th, 1925, page 590, I would be obliged if you would let me know where this material can be obtained, and if you recommend its use.—E. L.

[This substance may be obtained from "Windolite," 179–185, Great Portland Street, London, W.1. We understand that during the past year this composition has been considerably improved, and is giving excellent results in the experiments which are at present being carried out by the Medical Research Council with a view to its more extensive use in all constructional works. As far as our reports go it is well worthy of a trial.—ED.]

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ARBUTUS.

SIR,—I read with interest in your issue of October 31st, Mr. Bean's article on the "Arbutus," because I have been trying for some years to get A. photinæfolia, but without success. Perhaps Mr. Bean could tell me where I could get one, or if this catches the eye of a nurseryman, who can supply either A. photinæfolia or other hybrid varieties, which must be fairly hardy for this part of the world, would he kindly write to me? A. Unedo planted a few years ago is doing very well.—D. DOUGLAS OGILVIE, *Mylnefield, Invergowrie, Perthshire.*

ARBUTUS MENZIESII.

SIR,—In an article in THE GARDEN of October 31st, I noticed the paragraph referring to Arbutus Menziesii. I have one of these trees which I planted fifteen or sixteen years ago. It is now 18ft. to 20ft. high, with a girth of 3ft. It blooms every year, but late frosts have once or twice killed the flowers. So far it has not set any fruit. I would be pleased to hear if any of your readers have had similar experiences with this species.—JOHN RAWLINSON FORD, *North Lancs.*

ARBUTUS ANDRACHNE.

SIR,—Mr. Bean's article on the above (page 608) was most interesting to all lovers of trees, and should induce those who have space for same to plant arbutus. At Bicton, Devonshire, there are two good-sized trees of the above, one growing in low land among rhododendrons, kalmias, azaleas, etc., and though sheltered from high winds, it suffered somewhat when we had a storm, as did the one on much higher ground in the arboretum; good-sized branches were frequently torn off. The said trees flowered annually, but no fruits were ever noticed. It seems to me the wood is rather brittle and likely to suffer in exposed positions. It is certainly a most interesting tree when shedding its bark as well as when in flower. There is a good healthy specimen on the lawn at Cranmore Place, Chislehurst, and, although on high ground, does not show any signs of having suffered from abnormal weather at any time.—JAMES MAYNE.

FLEAS IN THE ROCK GARDEN.

SIR,—On returning from a holiday I was greatly interested to read an article by Mr. Elliott in THE GARDEN of September 26th on "Fleas in the Rock Garden." I, also, have had plants attacked, and as these were not members of the Cruciferæ, I think it desirable that the information should be made known. The first attack occurred in July on seedlings of Lonicera syringantha. Like Mr. Elliott, I noticed mysterious pits on the leaves, which after a time shrivelled up. On examining more closely I was surprised to observe a species of turnip flea jump away from them. It is not the species with the yellow spots which normally attacks turnips in this district. After killing the insects by hand, the plants grew away again in quite a healthy manner. Later on seedlings of Incarvillea brevipes in the same frame were attacked in like manner by the same species. I am indebted to Mr. Elliott for the excellent "tip" for catching them by means of fly papers. My attack being on seedlings in pots was defeated by hand picking. Out of doors this would, of course, be impossible.—E. B. ANDERSON, *Devon.*

BUTTERFLIES AND MICHAELMAS DAISIES.

SIR,—Like your correspondent "R. H.," I grow numbers of Michaelmas daisies in all prominent places because I love seeing the butterflies on them. This year we have remarked upon the absence of butterflies. In other years we have counted forty to fifty Peacocks at a time; this season we have not seen even one! Only two Red Admirals have we seen instead of large numbers. Other butterflies also were present in small numbers. Perhaps someone will give the reason.—M. K., *Nailsworth.*

VIBURNUM CARLESII.

SIR,—I notice in your correspondence, page 601 of THE GARDEN, Sir Herbert Maxwell's interesting remarks on my notes.

Here, at Winchester, there is seldom a leaf on Viburnum Carlesii by Christmas time and already this species is more than than half defoliated.

In connection with V. Carlesii Sir Herbert mentions the sometimes objectionable, though in some cases unavoidable, practice of grafting. This species, if taken at the right time, is comparatively easily rooted from cuttings, but is of slow growth afterwards. Seed, if it were procurable, would be the best and natural means of reproduction, but the plants would not flower in so young a state.

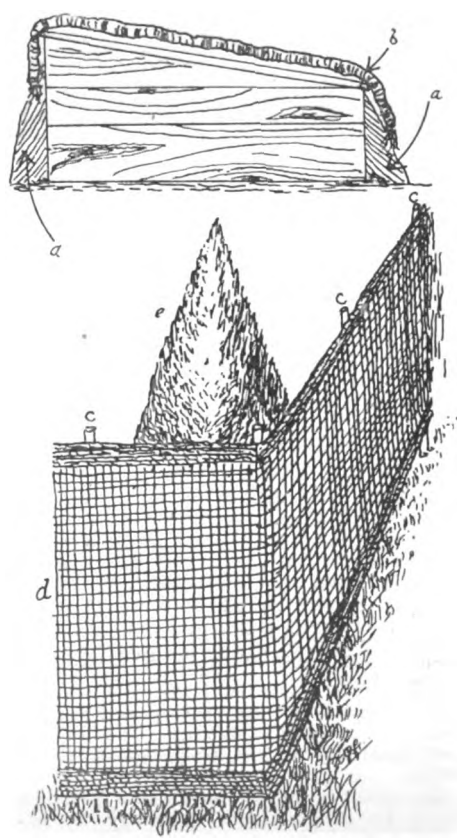
It is an interesting fact, Sir Herbert points out, that, whereas Spiræa arborea and its allies throw numerous suckers, S. Veitchii, up to the present, sends forth none.—H. G. HILLIER.

GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants.

MATS AND MATTING FOR WINTER USE.

SOME of our most beautiful shrubs and plants require protection during the winter months, more or less according to the severity of the weather. Bedding-out and similar plants can rarely be kept in a healthy condition unless covered with straw litter or mats; cauliflowers being wintered in cold frames or temporary shelters in readiness for early planting out in spring, are generally safe if mats are placed over them on very frosty nights, and it is absolutely necessary to use mats or litter where early vegetables are being forced in frames or salad plants are blanched. Coir fibre matting, properly placed, would save thousands of young trees and shrubs and hundreds of thousands of border plants when newly planted in exposed positions, especially in exposed places and on the sea coast. I remember, many years ago, a laurustinus hedge was planted near a low wall facing the sea, a quarter of a mile from the tidal waters. The plants did well as long as they had a shelter afforded by the wall, but above its level the young wood was regularly killed several inches back every year. Then a fine-meshed wire netting was fixed on the wall and the laurustinus grew splendidly. On the south coast, the south-west winds kill back many valuable shrubs and plants that are left unprotected in a young state, and from personal experience I know how necessary it is to use a wind-break formed of mats, hurdles or coir fibre wind-screening. Not only is it advisable to keep all covering mats dry to ensure them lasting a long time, but on account of their greater resistance to frost when in a dry condition. Many years ago, when bedding



out plants—except the more tender ones—were wintered in frames, straw litter and Archangel mats were the two principal kinds of materials used to exclude frosts. Frost penetrates damp, cold straw sooner than lightly placed dry straw and this applies to mats and matting, too. In a northern county a nurseryman saved his plants in frames by staying up all night, during a specially severe frost, and lightly turning and tossing the surface portion of the litter. Others in the same district lost many plants. If a sturdy hedge is near, the mats, when not on the frames, may be spread out there to dry. Failing a hedge, erect a few posts to support strong wire on which suspend the mats. Frequently frost penetrates to plants when mats are used, and even a thick layer of straw, when the covering material is not put on correctly. The edges and sides of the frames should be well covered as well as the glass lights. I have found the most effective covering in a severe frost to be, first, a layer of mats, and, second, a layer of dry litter on them—the sides of the frames being well covered, too. The Darjeeling mats are splendid, keep out frost, may be rolled up and last quite a considerable time. Old sacks, split open and sewn together, single or several in thickness, form good mats. It is important that all covering material be left on frames or plants, after a frost, till the thaw is complete. Good covering mats may be made of Frigi-Domo and Hessian. When ordering mats, have them a trifle too large, rather than too small.

The end of an ordinary frame is shown in the accompanying sketch. At *a*, *a*, some dry litter should be heaped against the sides and ends and the mat *b* placed over frame lights and litter if the mats are not large enough

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to reach the ground. To protect choice trees, plants or shrubs against south-west and north east winds, fix stakes *c*, *c*, *c*, to support the mats or matting. Full protection would mean having the matting as high as the tree *e*.—G. G.

SWEET PEAS.

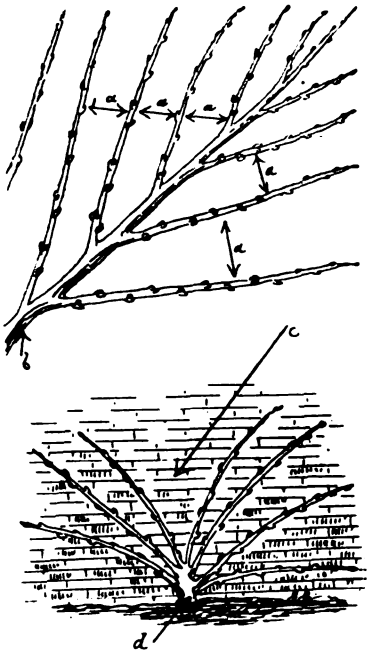
PROBABLY no flowers, certainly no annual flowers, will repay one so bounteously for correct and careful preparation of their flowering site as the sweet pea. Often I have stated the fact that they will grow and succeed in almost any kind of soil or situation, but the better that soil is prepared the better will be the results.

All soils require "knowing" to a certain extent, and although they may vary in their nature to a very great degree, the broad outline of correct treatment holds good in almost all instances. If I were asked to indicate in three words the chief points to bear in mind in soil preparation for sweet peas, those words would be "Early," "Deeply" and "Liberally."

By an "early preparation" of the soil I imply digging or trenching it in the autumn, the earlier the better. This gives the ground a chance to settle—for sweet peas like a firm rooting medium—and take full advantage of the disintegrating action of winter frosts and rains. Again, by early digging the manures which have been incorporated have ample time to "break up" into a form which can be readily assimilated by the roots at the time when nutriment is most needed by the plants. With soils of a clayey nature, or on the heavy side, autumn digging is not only advisable, but a necessity, for if this should be postponed until the early spring it will most likely be in a lumpy or sticky condition when the plants are transplanted, and develop a hard, unworkable and unaerated surface layer later. I do not know exactly how far down sweet pea roots will travel, but if soil conditions permit I should estimate quite two-thirds as far underground as their foliage reaches above the surface. Do not misunderstand me, for I do not mean that it is therefore necessary, or even beneficial, to move the soil to a depth of 6ft. or 8ft. From 2ft. to 3ft. deep is ample whatever objects one may have in view, even for exhibition purposes. Of course, excellent blooms may be obtained by simply digging one spit deep and turning in animal manure as for an ordinary vegetable crop, but where circumstances will allow I advise 2ft. as the minimum depth. The deeper and more extensive their root system—within reasonable limits—the healthier will be the plants, and, further, they will be much more likely to withstand adverse weather conditions, drought, excessive rain and sudden weather changes. C. H. A. S.

TRAINING AND TYING PEACH TREES.

A PEACH tree, if in a healthy state, will make many shoots in the course of a season—from March to the end of September. The owner must very carefully watch his trees and disbud during the summertime very freely, so as to avoid any severe winter pruning. But only expert cultivators do this; the majority leave in these freely-produced branches and then overcrowding is certain to occur and this means the ruin of the peach or nectarine as regards fruit bearing. Where it is found, now, necessary to cut out any shoots, remove those badly placed; do not cut out very strong unripe shoots, but wait until the young wood buds grow next spring, then rub all these off and cut away the branch itself when the tree is in full growth, smearing the wound with Gishurst compound to prevent the formation of gum. The young shoots *a*, *a*, *a*, *a*, *a*, should be trained at least 4ins. apart; 6ins. would be better. The bottom part of a tree should be filled first and to do this it may be necessary to bring down main branches *b*. The centre of a tree should be the least crowded part



of it and in the case of a newly-planted one the letter *c* shows how this is done. In doing the work of planting, none of the main stem *d* should be buried. This is a very important point.

PLANTING GREENHOUSE CLIMBERS.

CLIMBERS for greenhouse and conservatories should be selected suitable for the size of the structures in which they are to grow. It would not be wise to plant, for instance, a Cobæa scandens in a tiny greenhouse, because this and similar plants require a lot of space in which to grow to the best advantage. Lofty, spacious houses are splendid for accommodating such noble-looking plants as bougainvillea, habrothamnus, tacsonia and Solanum jasminoides floribundum. Pillars, back walls and wires immediately over the paths are all suitable positions for furnishing with climbing plants; one of the best for training to wires over the path is Clematis indivisa lobata, its beautiful deep green glossy leaves are there practically all the year round on a healthy plant, as it is evergreen. Hoya carnosa is a little gem and may be grown in a small space; Lapageria alba and rosea and rosea superba, look well on a trellis or a pillar, also hanging from the wires under the roof. Swainsonia galegifolia and the white variety alba do nicely on back walls, when there is light, but little sunshine; Bougainvillea glabra is best trained up supports under the roof glass and treated much the same as a grape vine. Jasminums form charming pillar and trellis plants. Plumbago capensis adds a lovely blue colour to the collection. All climbing plants may be grown in large pots and tubs, as well as in prepared borders. Good fibrous loam and sweet leaf soil with the addition of a little mortar rubble will form a compost for the majority while peat may be used for a few kinds.—HANTS.

VIOLETS ON A NORTH BANK.

IN many gardens there is a bank with a north aspect, at the back of which there is a hedge. Such a position does not get a great deal of sunshine, and there are few flowering plants which would give good results where there is so much shade. It is worth noting that a situation of this description is almost ideal for violet culture. One might, indeed, give the whole of the bank over to the little plants and, in any likely season, rarely be without the fragrant flowers. To give the best results violets must have a certain amount of shelter, which should preferably be a hedge, or, at any rate, a more or less open fence. A wall is the least satisfactory of all behind the violet bank. Those who grow violets on a bank facing north or north-east will be amazed at the way in which the plants fourish. This is in striking contrast to their poor development when the aspect of the bank is south. Before putting in the plants prepare the bank carefully. If the soil happens to be light and with much gravel, some stiff material and plenty of manure should be worked in. On a bank formed of stiff clay, dig in sharp gritty matter freely in addition to some well rotted manure.—LEONARD BASTIN.

THE TREATMENT OF LOBELIA CARDINALIS DURING THE WINTER.

A GARDENER of many years' experience with herbaceous plants once asked me how we managed to keep Lobelia cardinalis through the winter, and remarked at the same time that he lost all his plants in winter. It was that question, combined with what I might term the "no-difficulty" method which we follow each year with our lobelia plants, that has prompted me to give my experience. This handsome North American plant was introduced in 1626, and is, therefore, an old inhabitant of our gardens. It is also known as the cardinal flower; but "in our climate it is not perfectly hardy," and therefore it requires protection in winter.

Our method has always been to lift the plants with plenty of the border soil about their roots, and accommodate them in cutting boxes before severe weather sets in. The roots are set close together in the boxes, and any spaces left are filled with fine sandy soil or flaky leaf-mould. Then the boxes are placed underneath the staging—but where they will receive light—in one of the vineries. No water is given to the roots. If this practice is followed, no one should have any difficulty in keeping the roots of Lobelia cardinalis in a healthy state throughout the winter. In fact, I have seen plants come through the winter when left out in the open border. In spring, when the plants start into growth, they should be divided and the strongest stems selected and set out in good rich soil in other boxes. These plants should be grown on in a moderate temperature until established; then the boxes should be placed in frames and the plants gradually hardened off, until such time as they can be left in the open with safety, when they may be set in the flower beds or borders.—DAVID ARMSTRONG.

THE VALUE OF LEAF-SOIL.

THE leaves are now falling fast, and in gardens where trees abound the broom should be in constant use. The results of labour thus expended are always satisfactory, firstly by the greatly improved appearance of the garden itself, and secondly by the value of the leaves so collected. Leaf-mould is much and deservedly valued for mixing with the soil for potting different plants, and cultivators ought to see that they obtain a supply of it. It is the accumulation year after year of the fallen leaves of the woods that produce the rich dark soil that supports the fine forest trees and the ferns and flowers that carpet the ground above their roots, rendering the woodlands so delightful during spring and early summer. This decayed matter is equally valuable

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in the cultivation of nearly all kinds of garden flowers, as well as plants in pots, and may be used in the garden as a mulch during the summer and afterwards dug in. It may also be used freely when digging or trenching is done. If it be sifted it will do well for mixing with soil for seed sowing, pricking off seedlings, etc.

The best leaves for forming mould are oak leaves, while beech leaves are also valuable, and where these can be procured, a good plan is to have hurdles erected behind a hedge or in a corner angle of the garden, and as fast as the leaves are collected they can be thrown into this, wetted, and a few shovelfuls of earth thrown over them to keep them together. Another way is to place the leaves in pits covered with a little earth, and so get a genial warmth for cuttings in spring and summer; while, when the next autumn comes, this will provide a good supply of the finest mould obtainable. The leaves should be turned every two or three months and well shaken up during the process. This will assist decay, and also help to prevent the growth of injurious fungi among the leaves.

Hot-beds are often useful for such things as asparagus, rhubarb, seakale, lettuces, radishes and other vegetables which may be required, and the bulk of the material may be leaves; but there should be enough stable manure to hold the leaves together and throw a little energy into the fermentation. Lily of the valley, pot-grown bulbs and other plants may be brought on in a leaf-bed; and there is no better way of starting early strawberries till the flower spikes are showing. Pot roses will do well in a pit filled—or partly filled—with leaves. The blooms and foliage come clean and strong under such conditions. —R. D.

PLANTING ROSES.

ROSES may be planted at any time, during open weather, from November to early in April, according to soil conditions. The ideal time, of course, is in November and the first half of December; the latest date being suitable only in cases where it has not been convenient to plant earlier. Scores of thousands of roses are planted every year and a big percentage fail to grow satisfactorily, many dying. The plants are often very badly treated; they are lifted in a rough manner, unduly exposed to the air and, frequently, frost. Plants so treated cannot be expected to yield fine blooms the following year. It is only inexperienced and careless persons who treat the plants in this way. The cultivator, directly he receives the plants from the nursery, should immerse the roots, packing material as well, in a cistern or tub of water, allowing all so to remain for at least one night. Then carefully unpack and place the plants in a shallow trench on a north border, covering the roots with soil, after cutting off the ends of any that are bruised. If the weather is frosty when the plants arrive, place the bundles, unpacked, in a cool, dry shed and safe from frost. Leave them so till the thaw is complete. Immerse the roots in water before planting. Roses thrive in a stiff soil, but, nevertheless, I like to have a nice heap of almost dust-dry light soil in a shed available at the time of planting; a small spadeful sprinkled on the roots before the latter are covered with the garden soil does good eventually, as the soil is rarely quite dry at this season.—HANTS.

ST. BRIGID ANEMONES.

THESE lovely flowers may be gathered from October to early summer, if care be taken to plant strong corms in various situations—warm ones and in cool, north borders. Seeds sown in spring will yield plants that will bloom the following autumn and throughout the winter months. Seeds may also be sown in the autumn, indeed, in almost every month of the year. I know that some lovers of these flowers are under the impression that the plants will not thrive in a clayey soil. A few years ago I had a few young seedlings given to me by a friend. Being much pressed for time when I came home, and not wishing the plants to shrivel, I hastily "heeled" them in in a clayey, pasty border for the time being. But they were left there and have so remained for the past four years. Every year these plants have made grand growth and borne fine flowers. So cultivators need not hesitate to plant in such soil if it is in a suitable condition at the time. One defect of these flowers in some instances, is the shortness of the flower stem. I find it is longer on plants growing in a heavy, than on plants in a light soil. But I recommend cold frame culture where long stems and very clean flowers are required. It may be possible, in many gardens, to place a frame on plants where they are growing in the open border; if so, the result would be very interesting. It is important that all beds of these anemones be thoroughly cleaned before frosty weather comes.—CHRISTCHURCH.

PLANTING AND STAKING TREES AND SHRUBS.

THERE are odd specimens, clumps and new gardens to be planted from autumn to May. Even in the case of the single specimen it is advisable to dig the soil deeply and to loosen and break up the sub-soil. In the case of clumps and large borders general trenching of the soil is advisable. One rarely travels a few miles through town or country without seeing both trees and shrubs planted in wrong positions. The planter should understand what each tree or shrub is capable of doing in the matter of growth and select a position accordingly, so that, when the tree is practically fully developed it will be quite clear of drive, path or other specimen tree and show to the best advantage. It may be necessary to fill up vacant space with other kinds of trees or shrubs, but care should be taken that these do not interfere with the growth of the permanent specimen. This rule applies in the case of the big tree and the smaller specimen shrub, equally. It is, of course, another matter, but I may refer to it here, namely, the cutting out in future years: it should always be done in good time, before the permanent tree is damaged by overcrowding. Every specimen over 2ft. in height, in exposed positions, should be staked. Strong winds loosen the roots in the soil and delay the recovery of the shifted plant. If held firmly in position the tree or shrub soon forms new roots and new branches. Single stakes are sufficient for dwarf specimens, but tripod staking is best in the case of tall specimens.

WALLFLOWERS.

HUNDREDS of thousands of wallflower plants are raised every year and a big percentage of them are spoiled during their early stages of growth and another big percentage of them are wasted—thrown on the rubbish heap. Of course, it is too late, now, to sow seeds; I am dealing with stocks of plants now available in almost every garden. The pampered plants, raised in boxes, require very careful treatment or they will not be very satisfactory; those overcrowded in their seed beds also require care or good results cannot follow. Those from the open border, transplanted or not overcrowded, are the ones that afford us most satisfaction. The wallflower is quite hardy, but if the plants are disturbed and replanted during frosty weather, they suffer a very severe check, so also do plants grown in a very rich medium, when, in an open early winter-time, they grow rather luxuriantly and suffer from frosts. Moreover, these big sappy-stemmed plants do not yield the finest spikes of flowers, though individual ones may be large. An ideal soil is one of medium richness and containing some lime or old mortar rubble. The soil should be firmed while in a fairly dry condition. Lift the plants with the aid of a hand fork or trowel; if very large, use a garden fork. Transplant firmly and allow a space of one square foot per plant—nine to a square yard—then every specimen will be bushy, sturdy, even in height, and bear the finest flowers.—G. GARNER.

CARDOONS.

MCINTOSH remarks, in his book, the "Practical Gardener," that "There are four sorts known to cultivators in this country, although there is seldom more than one sort grown and that only in gardens of the first class." It seems that these remarks are quite applicable at the present time, although written eighty years ago, as cardoons are never seen in gardens. Their cultivation need not deter any enthusiastic amateur from growing splendid plants if these few details are followed. We have sown seed in the middle of April and in the middle of May, and from each sowing excellent results have been obtained. Our method is to sow the seeds—which are easily handled—in a box containing ordinary fine soil, then set the box in heat. In less than a month from date of sowing, the seedlings are placed singly in 4in. pots and kept in heat until the roots are well established in the fresh soil. Then the plants are moved to a frame and gradually hardened off. In June a trench is dug—in a sunny position—15ins. broad and 15ins. deep; in the bottom, and incorporated with the soil there, is spread a good dressing of decayed farmyard manure. Then a good layer of old potting soil—such as that left from the old pot chrysanthemums—is spread over, and the plants set out 1ft. apart in one long line in the centre of the trench. It may be interesting to state here that the foliage on well grown plants of the large Spanish cardoons resembles that of the globe artichokes. About the middle of September the stems should be tied with matting and the earth banked up on each side of the line of plants similar to the earthing up of celery. In four or five weeks time from date of earthing up the stems should be ready for use in the kitchen.—DAVID ARMSTRONG.

SALVIA ULIGINOSA.

A FINE but none too common plant now flowering profusely in the herbaceous border is the gentian blue sage, Salvia uliginosa. It is a beautiful hardy species from Brazil, and when shown before the Royal Horticultural Society on September 9th, 1913, it received an award of merit. It is not really fastidious in regard to soil or position, except dense shade, and thrives best where the border is not too dry during the summer months. Attaining a height of 4ft. or 5ft., the plant has a graceful, freely branching habit, and the flowers, although not nearly so large as S. patens, are numerous, a large number being open at the same time. It commences to bloom towards the end of July, and continues in full beauty until cut down by frosts. When the borders are dug over a little manure should be placed near the roots, and the clumps divided if necessary. The outside pieces are best for planting, and for preference it should be placed near the white Anemone japonica, where it will prove extremely effective. Propagation is effected by division and cuttings, the latter being taken in September or October, and they readily form roots in a cold frame if set in boxes containing sandy soil.—T. W. B.

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ORCHIDS FOR THE AMATEUR

PROBABLY few gardeners realise that the Orchidaceæ is now the largest of all plant families, with over 16,000 recorded species, exceeding the swarms of Compositæ that are found scattered throughout the world and which for many years held the first place in numbers.

A large volume could be written on the history of orchids, for their exotic appearance and the tropical jungles in which they grow cast a glamour over this wonderful plant family. Expedition after expedition has been sent out through every corner of the tropical world and through them have been imported many thousands of plants. One expedition to New Guinea alone, between 1907 and 1909, sent home as many as 1,102 new species. The hybridist has also cast his spell over them. It is recorded in the "Hortus Veitchii" how Mr. John Harris, a surgeon of Exeter, first suggested to John Dominy, one of Messrs. Veitch's gardeners, the possibility of getting hybrid orchids, and explained to him the structure of the orchid flower and the process of pollination. The result of the first experiment flowered in 1856, Calanthe × Dominii. The popularity of orchids increased rapidly, not only among gardeners but also among collectors of plants, and the prices rose with astonishing rapidity. As long ago as 1879 nearly £100 was given for a single plant of Vanda cœrulea, which can now be bought for one guinea or less. Many will remember the small fortunes that were often given for a striking new hybrid odontoglossum in the early years of this century. Probably the very intensity of this craze for the newest and the rarest helped to bring about the decrease in the value of orchids as much as war conditions, for the ordinary gardener fought shy of growing plants which brought in such fantastic prices. Now that the war is over and gardening conditions are more stable, orchids are again becoming fashionable.

It is a pity that their popularity has suffered a temporary set-back, for some of the genera respond excellently well to ordinary greenhouse treatment. They possess many advantages: the time the flower lasts, ease of cultivation, length of life of the plant. Many cypripediums, vandas, dendrobiums and cymbidiums fall into this class, as well as many other varieties and species, while some would prove perfectly amenable even to cold-house treatment. As an example of the latter Farrer and I found Cœlogyne cristata in Upper Burma smothering the branches of trees in waterfalls of the snowiest white, and this at an altitude of 10,800ft., where for four months of the year everything was covered with a mantle of snow. Plants from that part of the world have a peculiar temperament, and I cannot say for certain that they would grow outside in our climate, although I should imagine they would; but here is surely a plant that is ideal for a cool greenhouse.

All the genera I have mentioned have attractive flowers. Everyone knows the smiling faces of the slipper orchids and those who see the marvellous exhibits of the trade and of the few amateurs who still show must realise the brilliance of colour and marking of the newer hybrids. Vanda cœrulea is one of the most lovely of all orchids to my mind, with its delicate arched spike of pale lilac-blue flowers. Dendrobiums are old favourites. They never reached the amazing prices of odontoglossums and have always been an orchid for the average gardener, partly because of their floriferousness and for the fact that they flower with the same vigour year after year. Cymbidiums are newer favourites, but they are so absolutely suited to ordinary greenhouse treatment that even people who have no desire to own a collection of orchids have realised their decorative qualities. And so the tale might run on. Many genera have some quality or other that appeals to the ordinary gardener.

As we feel that the time has come to give the orchid a help to regain, not the crazy popularity of the early twentieth century but a more lasting home in the greenhouses of the great mass of gardeners, THE GARDEN has arranged with Mr. Gurney Wilson, the secretary of the R.H.S. Orchid Committee, who knows as much about these fascinating plants as anyone, to write a series of articles showing how orchids can be grown in the ordinary greenhouse. The first portion appears in this issue, dealing with cypripediums, and it will be seen that not only is this genus described and cultural details given, but a dozen varieties are also listed which are eminently satisfactory either as a nucleus for perhaps a larger collection, or as a group by themselves. I feel confident, however, that those who start orchids, however hesitatingly, will never give them up, for the orchid has not only a background and a glamour around it, but is lovely enough to ensure its own popularity once it is given a fair trial.

E. H. M. C.

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

THE BIRCHES, by E. H. Wilson.

DENDROBIUMS OF THE NOBILE SECTION, by Gurney Wilson.

SUMMER AND WINTER MULCHING, by J. Coutts.

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GREENHOUSE CYPRIPEDIUMS

BY GURNEY WILSON.

LOOKING back over the records of many years, one is convinced more than ever of the great popularity which cypripediums have enjoyed. Notwithstanding the present-day attractions of other sections of the orchid family, the genus cypripedium is one which more than holds its own in the competition for supremacy. If we seek the reason, it will be found in its suitability to the climatic conditions existing in the majority of amateurs' greenhouses. Its terrestrial habit of growth allows it to be grown in company with most of the occupants usually seen in an ordinary collection of greenhouse plants, and even if nothing better than the customary potting soil is used as a rooting medium, the results are quite satisfactory. These simple requirements explain why cypripipediums came into popularity at such an early date in the history of orchid cultivation. In fact, most of the amateur and trade growers soon discovered that, with little more than the usual attention as regards potting and watering, these plants actually acquired a more vigorous condition than they possessed in their native homes. With such a responsive nature to the simple requirements of life, what other plants are better adapted to the needs of an amateur.

More than a century has elapsed since Cypripedium insigne was first sent to England from north-east India. C. insigne var. Harefield Hall, is a real giant of its kind, while C. insigne Sanderæ, with its flowers of clear primrose yellow colour, is too well known to need further description. Both varieties have been propagated to an enormous extent.

The year 1869 marked the flowering of the first hybrid cypripedium. It had been produced by crossing C. villosum with the pollen of C. barbatum, and was named C. Harrisianum in honour of Dr. Harris, of Exeter, who first gave to Dominy the idea of hybridising orchids. Of the many thousands of different cypripedium hybrids that have since been raised it is possible to select a very wide range, varying from the pure white flowers of C. niveum, through all tints of yellow, to the darkest shades of crimson-purple.

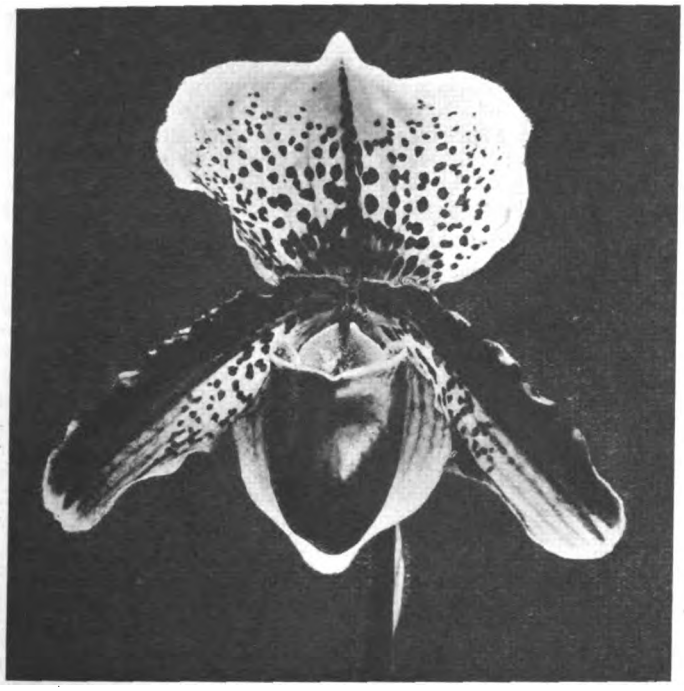
The generic name, cypripedium, is, in reference to the slipper-like form of the labellum, hence the common name, lady's slipper orchid, so familiar to everyone. But although the slipper-like organ of the flower is such a characteristic feature of the genus, it has never received anything like the attention that has been bestowed upon the dorsal sepal, which, in consequence of its more showy nature, is recognised as the principal segment. Even the typical C. insigne has its chief attractions in the dorsal sepal, while in C. Spicerianum there exists a species whose dorsal sepal of porcelain white nature has rendered it of immense importance in the production of beautiful hybrids. No better example exists than C. Leeanum (insigne × Spicerianum), for it combines in a most pleasing manner the chief characters of both parental species. Its large dorsal sepal is white, prettily marked with small, purplish dots arranged in vertical lines. Mention may here be made of C. Leeanum giganteum, for it constitutes one of the best examples of a hybrid orchid producing flowers larger than those of either parent, while the plant itself possesses a more robust constitution. When one considers the flatly displayed nature of this dorsal sepal, with its brightly coloured markings, it is easy to understand why not a few amateurs like to call their favourite cypripediums the Banner Flowers.

A GROUP OF CYPRIPEDIUM FAIRRIEANUM.

ONE OF THE MOST BEAUTIFUL OF THE GENUS, C. MAUDIÆ.

The first flowering in England of C. Fairrieanum created quite a sensation, for its beautiful formation and delicate tracery of colour surpassed all existing forms. Now we have an extensive series of Fairrieanum hybrids. No one who has cultivated C. Niobe (Fairrieanum × Spicerianum), will readily forget the fascinating characters of its artistic flowers, yet this is but one of a large number of beautiful lady's slipper orchids that can be successfully cultivated by any amateur, and which require no more care than that given to a maidenhair fern, or other shade-loving plant.

During the period when cypripediums were being imported in tens of thousands, considerable interest and speculation were attached to the first flowering of the plants under artificial cultivation. Just as C. insigne yielded a variety of primrose yellow colour, due to the elimination of the purple, so in turn most of the other species have produced the so-called "albino"



CYPRIPEDIUM ELATIOR VAR. SHRUBBERY.

varieties. This term is somewhat inappropriate, for the flowers are not pure white, but consist of examples in which only the purple pigment has vanished, the yellow or green colour remaining, as the case may be. Two other cypripediums of importance exist in the "albino" varieties of C. callosum and C. Lawrenceanum; and as both produce elegant flowers of a light greenish colour, the hybridists very soon crossed the one with the other and produced the popular C. Maudiæ, one of the most beautiful cypripediums that has ever been raised.

While C. insigne and several other species will withstand a temperature almost as low as freezing point, favourable results are obtained with a minimum of 45°. There are other species inhabitating warmer climates, and these must on that account receive a higher temperature. Amateurs who do not maintain warm-house conditions should avoid the tropical cypripediums, which is a matter that need cause no regret, for the number of suitable species and hybrids is far in excess of all ordinary requirements. Although ordinary soils of a fibrous nature will produce fairly good results, there is nothing like a mixture of loam, sphagnum moss, and peat for obtaining excellent plants and flowers.

The majority of cypripediums do not require re-potting more than once a year. Generally speaking, this is best accomplished when the new growths are two or three inches high, but should any plant get into a water-logged condition, no delay must be allowed in correcting the trouble. All decayed compost must be carefully removed, as well as any dead roots, and the plant placed in a pot of suitable size, the compost being worked in among the roots with a potting-stick, and finally pressed down firmly. Large specimens are not so fashionable as they were, and small plants prove of greater utility. Propagation is effected by severing the growths with a knife.

While many orchids are naturally subjected to prolonged periods of drought, and on that account are provided with pseudo-bulbs to store up the necessary moisture, cypripediums differ considerably, for being of terrestrial habit and accustomed to moist conditions throughout the entire year, it is absolutely essential that a moist atmosphere be at all times maintained. During fine weather the foliage may be occasionally sprayed, and so long as the temperature remains suitably high, the atmosphere should be kept moist by frequent damping down of the floor. During very cold weather, care must be taken that water does not lodge in the growths, for damage may thereby be caused if the temperature of the house becomes unreasonably low.

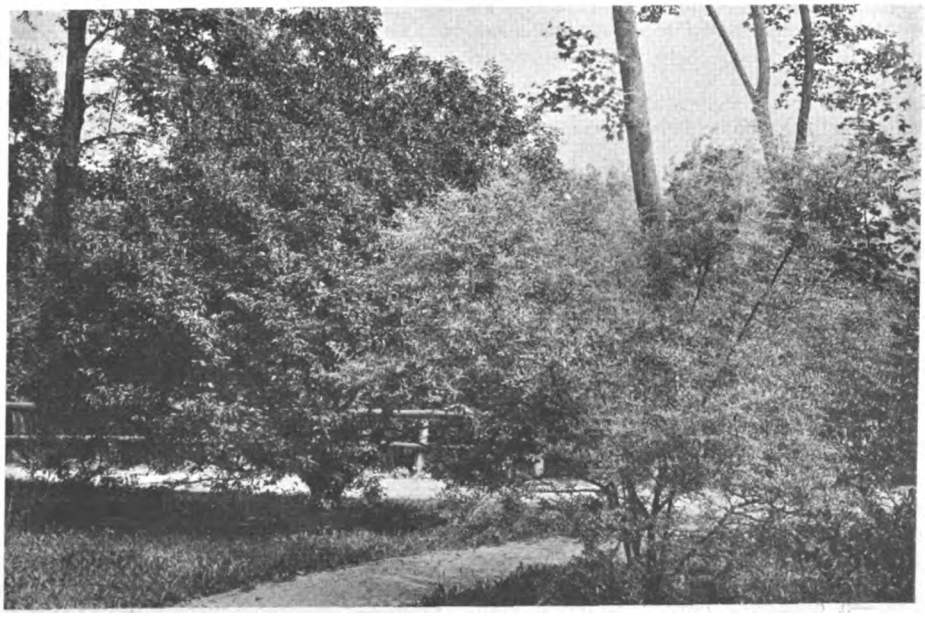
Another important point is that the plants must be protected from bright sunshine. They are, in fact, shade-loving plants. More cypripediums have been damaged through insufficient shading than by any other cause.

In C. Elatior there exists an elegant hybrid which is composed of the species and hybrids already referred to in this article. It contains insigne, Fairrieanum, Leeanum and Harrisianum, and is thus particularly suitable for an amateur's collection. The accompanying illustration depicts the Shrubbery variety of C. Elatior, to which a first-class certificate was awarded by the Royal Horticultural Society a few years ago.

In addition to the above mentioned kinds, a really useful dozen cypripedium hybrids can be recommended in aureum, gigas, Hera, Lathamianum, Lord Wolmer, Minos, nitens, Priam, Rossettii, Thalia, Troilus and W. R. Lee. All of these are easily procurable from the trade growers, and at very moderate prices. During recent years some new hybrids, with unusually large flowers have been produced, but at present they command too high a price to be entertained by the general amateur.

THE BEAUTY OF PRIVETS AS SPECIMEN PLANTS

SPECIES like the common or the California privet are two of the most useful plants of our gardens. Especially the last-named Japanese species, Ligustrum ovalifolium, which in America is called the Californian privet. It is a well known hedge plant with glabrous half-evergreen leaves of a glossy surface. Mr. Bean says that it is not worthy of being put to better use, being of stiff, ungainly habit, its flowers dull and, to most people, evil-smelling. This may all be true, but if we meet with a large well grown plant like that in the illustration overleaf, which stood in a Dutch garden, we are rather surprised by its natural beauty. The specimen measured about 12 feet in height. It was an exceptionally fine one, and I have never seen a plant of L. ovalifolium like it. The other Japanese privets with real evergreen leaves, like L. japonicum and L. ucidum, are very handsome larger shrubs, or even small trees, with larger, firmer leaves, and they belong to a different section on account of their flowers. To the same group as L. ovalifolium, with a



LIGUSTRUM QUIHOUI WITH PRUNUS LUSITANICA.

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long corolla tube, belong the Japanese L. acuminatum, L. amurense and L. Ibota, the latter now called L. obtusifolium. Of these, L. amurense is rather similar in habit to L. ovalifolium, and often semi-evergreen too. As its name indicates, it is more widely spread than the Californian privet, occurring in the region of the Amur and also in northern China. It seems to be rather rare in our gardens, and I do not remember ever having seen a good plant of it. It has, of course, nothing to do with syringa or Ligustrina amurensis, and it is said to be found in some collections under the name L. Ibota var. amurense. The true L. Ibota or obtusifolium is, however, a well known plant of a different habit, forming dense broad bushes with gracefully spreading and curving branches. Its small, short, nodding inflorescences appear in great profusion, especially on the Continent, because the species of ligustrum with deciduous leaves prefers a Continental climate. L. Regelianum, that usually is regarded as a mere variety of L. obtusifolium, forms even dwarfer and denser bushes with almost horizontally spreading branches, and is, in my opinion, less ornamental than the type.

A SPECIMEN PLANT OF THE COMMON PRIVET.

To the same group as the species mentioned above (section Ibota of Koehne) three more species are to be reckoned. Two are from central China: L. Henryi and L. Delavayanum or L. Prattii, and the third one comes from the eastern Himalayas: L. Massalongianum. All are evergreen shrubs, and the Chinese species become bushes up to 13 feet tall but hitherto I have not seen large cultivated plants. I know, however, L. ionandrum from Yunnan, which, according to Rehder, is possibly only a form of L. Delavayanum with stunted flowering branchlets and short dense panicles. L. ionandrum forms dense roundish shrubs closely resembling Syringa sempervirens, which is now Parasyringa sempervirens. Of L. Delavayanum there seem to be several forms, some of them rather like L. ovalifolium in habit. It was introduced long ago by Abbé Delavay, and I first saw it in 1906 in the collection of the late M. L. de Vilmorin at Les Barres. Its branchlets are densely covered with a short pubescence. This is the same in L. Henryi, which seems to be altogether a much more showy species. Both have small oval or almost roundish leaves. In this respect they differ widely from L. Massalongianum with its linear-lanceolate leaves. I know it only from some Mediterranean gardens, and it is, apparently not hardy, except, perhaps, in the warmest parts of the British Isles. It looks very pretty when in flower. There is a species in western China related to it and named L. gracile by Rehder. So far as I know, it has not yet been introduced.

Of the other section of the genus, representing the typical ligustrums, I have already mentioned the evergreen L. japonicum and L. lucidum, which are among the best broad-leaved evergreens in the gardens of southern Europe. In many gardens of Spain I met with the variegated-leaved variety of L. lucidum, var. tricolor, forming large dense almost tree-like bushes of which the leaves show a distinct yellowish variegation and an irregular border of white; besides this they are pinkish when young. The three or even four colours make a rather curious but not unpleasant impression. There are apparently some hybrid forms in existence between L. japonicum and L. lucidum. I saw plants under names like L. Kellermanni, L. magnoliæfolium and L. Sieboldii that may partly represent such hybrids.

I have never been sure about such species as L. nepalense and L. Walkeri. The latter comes from Ceylon and the Neilgherries, and I do not think that any form I have met with under this name has anything to do with the true species. There are, however, quite a few forms in our gardens that are almost evergreen, and not identical with species of the Ibota group. I suppose they are mostly of a hybrid origin, and it may be that the true L. nepalense or even L. Walkeri is mixed up in the parentage. L. vulgare, which has half-evergreen forms (var. italicum or sempervirens), or L. sinense, which sometimes in mild winters is nearly evergreen, may easily hybridise with nepalense or Walkeri. L. sinense is one of the best species for ornamental purposes; it is, however, an exceedingly variable plant, and apparently widely spread from central China to Korea. It is often mistaken for L. amurense.

Of almost equal horticultural value with L. sinense is L. Quihoui (L. brachystachium), from central and northern China. It is one of the most graceful privets, and of special interest on account of its late flowering time. Its name sounds rather strange, and was given in honour of Mr. Quihou, who was the superintendent of the Jardin d'Acclimatation at Paris in the sixties of last century, when this species was introduced to France from northern China.

There is still one Chinese privet that ought to be mentioned, the evergreen L. strongylophyllum, with small, almost orbicular leaves. It is less hardy than L. Delavayanum.

CAMILLO SCHNEIDER.

A ROCK GARDEN OF THE NORTH

THERE is a disposition to think of the rock garden as a thing apart—a place that begins just here and ends just there, without relation to the garden proper. Either it is a poor relation, as it were, of the herbaceous spaces, to be tucked out of sight; or it is kept sacrosanct, as if its owner told you in so many words that here is something almost too rare for human nature's daily food—a cloistered corner, to be hidden from the rough ways of men.

The particular garden I have in mind was not built in sections of this kind. Its whole being has developed under wider and more natural auspices. But, then, its situation asked no less.

Picture to yourself a trout stream, running wide and shallow—except in flood times—from the near moors. It goes under thick-boled sycamores and slenderer beeches. Across the hipping stones—stepping stones, in newer English—a cart track goes to the meadows. They name it Lovers' Lane. In July the hay wagons come lilting home, spreading their wares on the thorn hedges as they pass. In that month, too, the elder bushes are afoam with blossom, all the lane's length, and one recalls many a kindly superstition of the countryside touching the elder. Like the rowan, it is a tree of benison and all good luck. Its flowers are packed with honey for the hives; gathered fresh and made into an essence, they are good for the

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complexions of Dales lassies that seem to need no further charm. Its berries make wine, held in great esteem.

One lingers on description of stream and lane, because the garden's roots are there—the roots of this special garden I have in mind. And it is only by starting at the roots that you understand the surface growth of anything.

A lawn slopes up from the stream and the wicket gate to a grey ancient house that was young, one surmises, about the time that Mary of Scots languished on the long, sick road to Fotheringay. The house is peopled by old memories and kindly ghosts that lie in wait along the corridors with whispered God-speed. Altogether, a house to inspire a garden that has answered the clear call.

As you come in at the main gate, you are aware only of a shady path, till on closer acquaintance the beginning of the rock garden shows itself. Shade-loving plants are there in their seasons. The primrose tribe thrives among the grey limestone rocks. So, later on, do the campanulas—the little creeping folk in front, backed by their taller cousins. Woodruff scampers in and out among the boulder crannies. Wild pansies lift their little elves' faces from unexpected corners.

The path winds into the open suddenly, across the house front with its long border strip of blossom, then dips sharply under a hillside that in itself is a rock garden of intriguing charm. Great boulders climb the hillside, and their crannies are filled with sun-loving things that sprawl and riot half over the rough bulk of their parent rock. The houseleek thrives there, and all its waxy-leaved brethren So do the rock roses, white and gold and salmon-red—and alpine broom, that flowers itself almost to death each year, but recovers gamely.

A second curve of the path brings you to yet another type of rock garden, stretching to the stream-bordered field beyond. This in turn merges into the striding pastures, coppice-dotted, and these into the high moors and the far, over-arching sky.

One of those upland pastures looks down on its own stone, brought here to make a home for the thrifts and saxifrages, the alpine wallflowers, the heaths, that in turn fling their blossoms in spend-thrift sheets of colour. London Pride is here in plenty, liking full sunlight as it loves equally the shade. So is a little friend with a name too long for her inches —Primula farinosa. We of the country name her mealy primrose.

Again the rock garden blends with its surroundings. Below there, where a strip of woodland guards the stream, forget-me-nots spread a blue, mystic haze under free-blooming honesty, a plant beloved in the Dale. A little earlier crimson saxifrage—in the rock garden here—was a joy with bloom. August, on the moors far up into the sky's rim, brings its own crimson glory of the heather. Seen from the garden, it is a patch no bigger than the saxifrage showed to onlookers from Lovers' Lane when it was in its pride.

All is in harmony, from garden to pasture lands and moor, as if the three were one. And this brings home again the certainty that in country gardens, with free room about them, rock spaces can wander anywhere, if placed by a hand that has served its apprenticeship of love, by a spirit that foresees in autumn how to plan for vagrant spring and golden summer.

In this garden of the Dale, you will find all manner of plants in what should be incongruous nearness. Willow Herb glows in crimson riot and in unexpected places. Sweet rocket—the wild phlox—makes a home where it lists. Marigolds will not be denied, when they choose to seed themselves in likely quarters, and flaunt their glowing blossoms to the sun.

Yet all is orderly. Once, in that garden, I walked with the builder of it, and with an ancient man who had been a gardener before Time, in its passing, supplied him with rheumatism and a crutch. His name was Aaron Waddilove, and seemed to fit him. He was so wise, so calm with quiet of the elder days.

"I can see you started by making your garden-paths first," he said. "You looked at all the twists of stream and pastures, and brought your paths into line, inch by inch and foot by foot."

"I did, as it happened. How did you guess?"

"Because they march with the lands outside. It couldn't have been done otherwise. Then you began to plant—good, honest roots. No fancy stuff for you because it happened to be rare."

Aaron looked up and down the garden, with a smile whose memory lingers with me to this day.

"What a muddle it might have been—and what a sheer joy it is," he said, lighting his pipe afresh. "It's the garden and you together—trusting each other. A garden knows her own, just as a woman does. And I'm glad to see you so free with your London Pride. You can never have too much of it, say I."

The spring gloaming surprised us as we lingered in the garden that would have been a dream if it had not been real. And everywhere, from moor to drowsing pastures, romance stirred vagrant wings. HALLIWELL SUTCLIFFE.

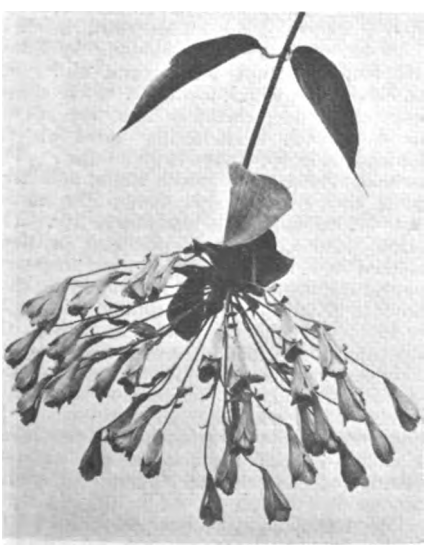
NOTES OF THE WEEK

TWO HYBRID BOMAREAS.

BOMAREA MATTHEWSII.

This plant was raised in the Glasgow Botanic Garden, and is the result of crossing Bomarea Carderi with B. edulis. When shown at the Fortnightly Show of the Royal Horticultural Society on October 20th, it obtained an award of merit.

It is a great improvement upon either parent and will, undoubtedly, prove a useful addition to the list of plants suitable for a cool greenhouse.



B. MATTHEWSII, WITH LONGER STALKED DULL PINK FLOWERS.

BOMAREA WHITTONII.

This fine hybrid was also granted an award of merit at the same fortnightly show at Vincent Square, Westminster. It is one of several that have been raised recently in the Glasgow Botanic Gardens, and is named in compliment to the late Mr. Whitton, Director of Parks and Gardens, Glasgow. The bell-shaped flowers are pinkish white, prettily spotted with chocolate. It is the result of a cross between B. edulis and B. Carderi, and will, undoubtedly, prove an acquisition to the greenhouse.

Bomareas are not so widely known as they deserve to be, especially when one considers how easily they are grown. All they need, if grown in pots, is a support for their long, twining stems, and a light position in a cool house. If planted in a border and the shoots supported on wires, they will amply repay the little trouble spent upon them by producing a succession of their drooping, bell-shaped flowers.

The genus contains about seventy or more species, but, alas! there are not more than the five following now in cultivation.

BB. Caldasiana, yellow, spotted red; Carderi, pink and green, spotted brown; edulis, pink, spotted brown; patacocensis, wine colour; Banksii, orange red, a hybrid raised in the Cambridge Botanic Garden, between B. Caldasiana and B. patacocensis. —E. H. BANKS.

THE LONG BELL-SHAPED FLOWERS OF B. WHITTONII.

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AN INTERESTING BI-GENERIC HYBRID.

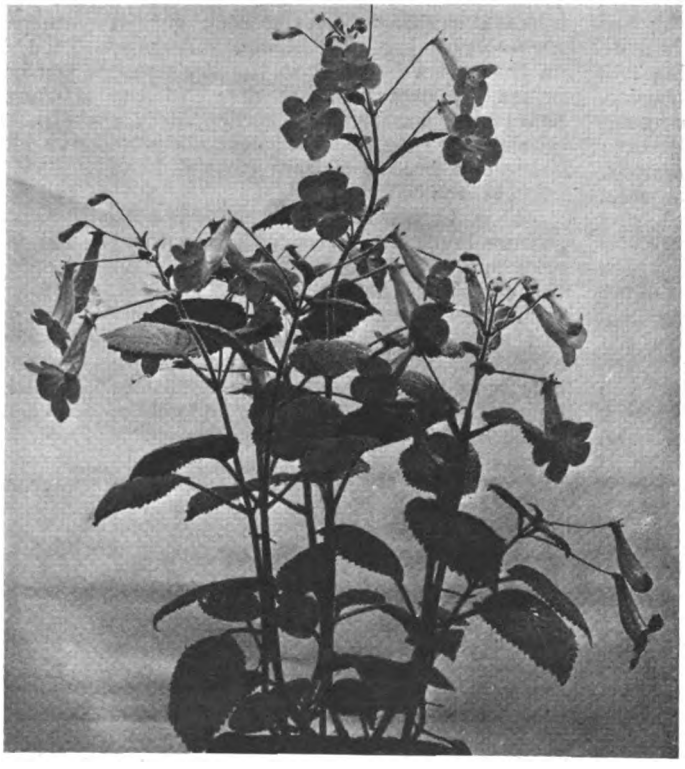
THE Natural Order Gesneriaceæ provides us with some of the best and most useful flowering plants for the embellishment of our plant houses. They are principally summer-flowering plants, but by careful cultivation a display may be had from April to December. Much good work has been accomplished by the hybridist, and this may be seen in the excellent strains of gloxinia (sinningia), gesnera and other plants of this family now available.

Mention must also be made of other useful, but perhaps less known, plants, such as tydaea, isoloma, nægelia, saintpaulia, achimenes and columnea. The introduction during recent years from Costa Rica of Columnea gloriosa var. superba and others of this genus are welcome additions to a race of useful and decorative plants. The accompanying illustration is from a a photograph of a new bi-generic gesnerad raised in the Glasgow Botanic Garden.

This interesting hybrid is the result of intercrossing Achimenes grandiflora with Gesnera zebrina, the latter being the pollen parent. The flowers were pollinated during the summer of 1921, and from the pollination five fertile seeds were produced and successfully harvested.

These seeds were sown early the following spring and placed in a stove house having a temperature of 65° to 70°, where they germinated in about three weeks. When large enough the seedlings were potted singly into 4in. pots and afforded all the light possible. Subsequent treatment was similar in every respect to that afforded to gloxinias, and by the end of August the first flowers appeared.

This newcomer, as may be seen by the illustration, bears strong evidence of gesnera blood in the broad leaf, which is covered with hairs of purplish metallic colour, and also in the tubular, gesnera-shaped corolla which has an orange coloured throat. After flowering the plants are allowed to ripen off and the root tubercles, which are similar to those of achimenes, are stored in a dry place for the winter.—B.



ACHNERIA "ST. MUNGO," A FINE HYBRID GESNERAD.

MILKWORTS FOR THE ROCKERY.

THERE are a few lovely little polygalas, flowering in spring, whose presence gives a charm of undeniable value to the rockery or rock garden, and which add immensely to the enjoyment it affords its owner and friends. Two of them have been in cultivation for many years, and their hardiness and the methods of culture have been fully tested. These are Polygala Chamæbuxus and its variety, P. C. purpurea. A later aspirant for our favour is called P. Vayredæ, and it is of great beauty, though not so suitable as the others for the colder localities of the British Isles. As a general rule, P. Chamæbuxus and its variety are quite hardy, but it has been found in some places in the north-west, where there is frequently much rain in late autumn and winter, followed by severe frosts with strong winds in late winter and early spring, that these exquisite polygalas occasionally succumb, if not in positions sheltered to some extent from bitter winds. But this is not by any means general, and is infrequent even in the district mentioned, so that those who wish to grow these lovely box-leaved milkworts need not hesitate to try them. Any ordinary soil, not too heavy, will suit them well, but I prefer loam and leaf-soil in a position not parched at any season and with a little shade, though they have been found to do well even in sun. P. Vayredæ should have a warmer position with a more porous soil and can stand more sun. Its distribution in gardens is not as yet very wide, so that its foibles have not been learned to the full. P. Chamæbuxus is a neat little plant with leaves like those of the box and has charming flowers of white and yellow. It is only 4ins. or 6ins. high and of rather spreading habit, if we may use this term as applicable to such a neat and non-aggressive miniature shrub.

Its variety purpurea is a still more exquisite plant with rather bigger flowers, and these are a combination of purple and yellow which harmonise so well together on the little pea-shaped flowers.

P. Vayredæ is a smaller and, if possible, a still more lovely little shrub. Its harmony of gold and carmine-rose presents a picture of the utmost charm, and, but for the slight doubt respecting its absolute hardiness, would have a widespread popularity. Many, however, may well take their chances of success and cultivate this shrub, which, like its allies, stands in the front rank of alpine flowers. Plants may be bought in pots for transplanting at any time.—S. ARNOTT.

THE ALPINE CATCHFLY.

THERE are some alpine flowers which ought to be in every garden where there is even only a miniature rockery and which, when seen either in small plants or in abounding masses, always delight the true lover of flowers. Of such is undoubtedly the exquisite alpine catchfly, Silene alpestris, which, though lovely in the extreme, has also the not-to-be-overlooked merit of cheapness, and, in addition, that of easy culture. It is an exquisite plant with narrow, glossy green leaves and an abundance of pure glistening white flowers with fringed petals. It is so easy to grow in light soil that its real likings are not considered, and it will thrive nearly anywhere. It loves not only a light soil, but it delights in a fair amount of moisture, and with this will grow and flower with greater luxuriance, particularly if the position is a cool one. There is a widespread belief that all alpines love full sun, but this is a mistake, and Silene alpestris is one of the lovers of coolness. There is a very charming double-flowered variety, S. alpestris fl. pl., and there is also said to be a pink one, found on the granite (the white one is a lime-lover), which is excessively rare. Propagate by division or by seeds in the case of the single form, but by division or cuttings only with the double one.—DUMFRIESSHIRE.

HARDY PRIMULAS.

IN large gardens and adjoining woodlands there is rarely much difficulty experienced in finding suitable quarters for the hardy primulas. In small gardens we may have these lovely flowers, too, if we study their requirements a little. There are many varieties of hardy primulas. Some are termed hardy, but require a little protection in severe weather, and the small cultivator should leave them out of his list. They all thrive splendidly in ordinary soils, but they are worth special mixtures if the very best flowers are to be obtained. I shall not easily forget the grand display of hardy primula flowers I saw last June in a large garden and woodland in the New Forest. For several years I have been privileged to inspect the groups of these plants, the flower-stems of many plants being 2ft. high and topped with huge trusses of richly coloured blossoms. The plants were grown in three different positions. A reference to them may be of interest and use to readers who are commencing the cultivation of these plants. At the sides of an ornamental sheet of water with other subjects, the primulas were luxuriating, their roots being permanently under water. In this case a fresh batch of young plants was raised and planted there annually. The next to claim attention were plants growing in colonies in slight depressions in the ground on a gentle slope having a due north aspect. These depressions—cups—in the ground collected moisture which was constant and just in sufficient quantity to maintain the plants in robust health. These were the plants having flower-stems 2ft. long. The third batch of plants were growing in almost pure leaf-soil, sand and gravel under oak and other trees which formed a wood almost clear of undergrowth. The aspect was due east, with a sheltering wood on the opposite side of the little valley. The primulas grew on a gentle slope, and here, again, the subsoil was constantly moist, while on the surface it was nearly dry. The plants were about half the size of those referred to in the north aspect, but they were healthy and flowered freely, and lived healthily throughout the winter months. In small gardens rock stones are a great help in the growing of the plants, and where suitable positions are available small colonies may be established and the necessary soil placed there. The compost should consist of well rotted leaf-soil, grit, the rougher pieces of charcoal from wood ashes and an equal quantity of good ordinary loam. Of course, the rooting medium should be of good depth.

The following varieties are suitable for both large and small gardens: Primula cashmeriana, P. c. alba, P. rubra, P. cortusoides, P. denticulata, P. d. alba, P. farinosa,

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P. glutinosa, P. helvetica alba, P. sikkimensis, P. rosea for massing, P. viscosa and P. japonica hybrida. The latter are especially valuable for planting in naturally shaded,

A GROUP OF PRIMULA DENTICULATA ALBA.

damp positions and low down on rockeries. These will do for first planting and may be added to from time to time.—G. G.

A NEGLECTED AQUATIC.

THE water willow or swamp loosestrife (Decodon verticillatus), a near relative of the purple loosestrife (Lythrum salicaria), is a very common suffruticose plant in Massachusetts and is found southward to Florida and westward to the Mississippi valley. It is aquatic or semi-aquatic in its habits, favouring the margins of lakes and ponds, where it forms dense masses which, in early autumn, are glorious drifts of orange, scarlet and crimson. Intolerant of companions as a hermit, it fringes open waters ribbon-wise and spreading into broad bands crowds out all other plants. From the clumpy rootstock in the mud below, ascending shoots are upthrust which, arching somewhat and often whip-like at the ends, stand from 3ft. to 4ft. above the level of the water. These shoots for about a foot or more at the base are enveloped in a curious spongy mass of aerating tissue. The whip-like tip develops branches and puts forth roots when it touches the water or mud and thus a new plant is formed. The stem is angular, with the leaves arranged mostly in whorls of three; but towards the tip the arrangement becomes irregular and the leaves may be in pairs or scattered. The leaves in shape are oblong-lance-shape, pointed at both ends and short stalked, from 2ins. to 4ins. long and from ½in. to 1in. wide. From the leaf axils on the upper third of the stem arise sessile clusters, each containing from three to several slender-stalked flowers; the individual flowers are about 1in. across with five rose-purple pointed petals and stamens of unequal length. The fruit is a small dried capsule containing minute seeds. The flowers are not showy and during the spring and summer the plant is not particularly attractive, but at the approach of autumn what has been merely a pleasing fringe of green leafed stems arching and swaying in the breeze, becomes a blazing screen of colour.

The water willow is one of the earliest plants to assume autumn tints and no waterside herb or shrub excels it in brilliancy. Early in September I saw in the distance on the edge of a pond a fiery mass of scarlet which for the moment I thought was a profusion of cardinal flower (Lobelia cardinalis). Too late in the season for this plant to be in full blossom, I ventured across to find that it was the decodon decked in autumn robes, and a more brilliant spectacle of the kind I have never beheld.

Rich as the gardens of the British Isles are in plant material, not a few of the common plants of North America seem quite unknown to them. The subject of this note is a case in point. I do not find it in the Kew Handlists, and it is not mentioned by Bean in his "Trees and Shrubs." Nevertheless, it was one of the first recorded American plants. Ray, in his "History" (Vol. III, page 504, No. 9, 1704), mentions it under the name of Lysimachia purpurea Marilandica; Gronovius in his "Flora Virginica," 52, 1739, lists it as a Lythrum with opposite leaves and verticillate flowers and states that it was collected by Clayton. Linnæus in 1753 named the plant Lythrum verticillatum; in 1791 it was made a type of a new genus (Decodon), by Gmelin. Under Linnæus' name it is said by Aiton ("Hortus Kewensis," Ed. 2, III, page 150, 1811), to have been introduced into cultivation in 1759, so apparently it has been lost to British gardens. New England winters are more severe than those of the British Isles, where it would seem there is no reason why this attractive plant should not flourish. In water-gardening for the edge of ponds it is a most desirable plant and to visitors from Europe who see it growing wild in Massachusetts in September its appeal is irresistible.—E. H. WILSON, *Arnold Arboretum.*

THE PROPHET FLOWER.

WE need not believe the tales associated with them, but plants of legendary lore appear to have about them some special attraction for us, and those who have dabbled much in plant lore and legends, find in these flowers a pleasure not always justified by their outward beauty. But with the prophet flower, Arnebia (or Macrotomia) echioides, there need be no reservation whatever. Apart from the interest of the legend that Mahomet left the marks of his finger tips upon the flowers, this plant is of high charm indeed, and is always appreciated in the rock garden or even the border, where it may be planted with advantage near the front. It has narrow, rough-looking foliage and forms good tufts where it is happy, giving us from June onwards for some time clusters of numerous open yellow flowers marked with the spots alluded to in the legend. These are black when the flowers open first, but gradually fade away to almost lemon yellow. At first they look sharply in contrast to the soft pleasing yellow of the petals, but afterwards they seem to be more in unison with the general *motif* of the plant. As the flowers open in succession the individual blooms show the transition of colour of these spots at all stages.

This prophet flower is by no means difficult to cultivate in this country, and appears to be very hardy, although it is said to come from hot plains in northern India, where it grows in stiff soil, and stands a considerable amount of drought. With us it would seem to like a dry soil, inclined to lightness and well drained. It is propagated by cuttings or by seeds, but these are seldom offered for sale. Some seasons I succeeded in saving a few seeds, but they are not freely produced in this country, I think. This is one of the best rock garden plants we have and one which can be recommended with every confidence.—S. A.

THE WATER WILLOW (DECODON VERTICILLATUS) GROWING BY THE WATERSIDE IN THE ARNOLD ARBORETUM.

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THE TREATMENT OF INDOOR FRUIT TREES IN EARLY WINTER

THERE is much important work to be done in connection with inside fruit during the early winter. Ripe grapes, which are required to hang as late as possible, must receive constant attention in the way of judicious ventilation on fine days, and fire heat when necessary to assist in maintaining a dry atmosphere. Vines from which the crop has been gathered and the leaves have fallen, should be pruned and cleaned. Peach, nectarine and fig trees will require attention, and where orchard-house trees, such as apples, pears, plums and cherries, are grown, these too should be overhauled. Even though it may not be intended to start any of the above kinds before the New Year, it is well to feel that such work is done and everything in readiness for a good start.

By the time mentioned. no doubt, in some gardens, forcing of some of the above will have commenced. Very early forcing, however, is much less practised than was the case at one time. It is all to the good of the trees that they are not unduly forced. By allowing them to come along more naturally with the aid of more and stronger sunlight, the fruits are invariably of superior flavour.

When vines are grown in a house by themselves, or with only a few well chosen companions, they can be kept in good health for an indefinite time. When, however, the vines are in perpetual association with a general collection of plants, such as one occasionally sees in the amateur's greenhouse, the question is very different, and pests sooner or later make their presence felt and are most difficult to eradicate.

Mealy bug—the worst of all pests of the vine—frequently gets a footing through having been introduced on other plants. Whether pests have given trouble during the season or not, the vines should be stripped of loose bark, cleaned and thoroughly scrubbed with a good mixture such as Gishurst Compound—an old but reliable insecticide. Previous to this the vines should have been lowered from the rafters and pruned, cutting back the laterals, current year's wood, to two eyes, except in the case of a few varieties such as Lady Hutt and Cannon Hall, which should not be pruned so severely.

Where the roots of vines are growing in outside borders, the latter must be protected from heavy rains by means of corrugated iron sheets or glass lights.

If for any reason it is thought desirable to examine the borders, whether inside or out, this should be undertaken as soon as possible.

Borders properly made in the first place will go on for many years without further attention other than an annual top-dressing of good soil. The latter is best given after the house has been cleaned and vines tied in position. A few inches of the top soil is pricked up and removed and replaced with the very best loam to which has been added lime rubble and bone-meal. In the case of old vines some decayed farmyard manure could be added.

Peach trees will also require attention. Defoliation will take place according to the length of time the trees have been in active growth. It is wise to gather the fallen leaves frequently, as oftentimes red spider—the worst pest of the peach—has been troublesome, and the removal of the leaves would do something to rid the house of this pest for the following year.

When the leaves have all fallen the house should be thoroughly cleaned by washing glass and woodwork and white-washing the walls with hot lime; this applies to all fruit houses. The trees should then be pruned, cleaned and tied back in position, unless the roots need attention, in which case the tying in should be deferred.

The pruning will depend largely on the amount of summer pinching done and on the age and size of tree.

If a tree has not covered its allotted space the extension leaders must be continued. A well balanced tree trained to the usual fan shape should have about eighteen main branches, nine each side of the centre, to form the framework, from which the fruiting wood is produced annually. The peach and nectarine fruit on wood of the previous year's growth, and sufficient of this should have been retained during summer to take the place of old fruiting wood, which can be cut back at any time after the crop has been gathered.

The final pruning is often left till the tree is free from leaves. Well ripened shoots are necessary to produce good fruit, and these, after being washed, should be tied in parallel to each other, never overlapping, at about 4ins. to 6ins. apart. Young trees before coming into bearing, and occasionally after, need root restriction, and this is best done by carefully lifting the tree, shortening any strong shoots and replanting, taking the opportunity of adding some good loam and lime rubble around the fibrous roots and ramming firmly. A good watering when the work is completed is advisable to settle the soil.

In the case of older trees in full bearing, a portion of the top soil should be removed and fresh added, the richness or otherwise being based on the condition of the trees. If they are in the habit of annually carrying good crops of fruit, some decayed farmyard manure should be added to the loam, together with wood-ash and bone-meal. A word of caution is necessary about the moisture of the border at this time of year. On no account must it be allowed to become very dry. Mistakes in this direction have often resulted in wholesale bud-dropping in spring and a total loss of crop.

If new trees are to be planted, this is best done as early in autumn as possible. In this connection it is well to remember that, if obtainable, quite strong and large trees can be safely transplanted and a crop obtained without the loss of a season.

Peaches and nectarines can, of course, be very successfully grown in large pots or boxes. I have seen splendid crops of fine fruit grown in strong boxes which had previously done duty as packing cases for lilium bulbs imported from Japan. The trees, trained fan-shape, made fine manageable specimens.

When grown in these boxes it is not usual to shift them into others of larger size, but annually or biennially the trees need to be carefully turned out of the boxes, and the balls of soil slightly reduced, cutting off any strong roots at the same time.

Rich new soil must replace the old, and this must be firmly rammed between the ball of soil and edge of box.

Figs grow and fruit well in comparatively small pots. Fruiting trees need an annual shift into slightly larger pots, and this may be done at any time in autumn with trees to be started in the New Year.

A suitable compost would be one of strong loam, a small portion of decayed farmyard manure, bone-meal and lime rubble. Very firm potting is essential. Until ready for starting in heat, all kinds of fruit trees ought to be kept as cool as possible.

ARTHUR J. COBB.

CORRESPONDENCE

THE BREAKING OF TULIPS.

SIR,—I have read Mr. Needham's able article on the breaking of tulips with keen interest. Probably no one is better qualified to deal with the past or recent history of this ancient garden flower, or more fully versed in its behaviour under cultivation. As he reminds us, all tulips break sooner or later, though no definite rule can be laid down as to the period when this will take place. Centuries of careful culture and close observation have failed to elicit any clear reason for, or to suggest an infallible means of either hastening, delaying or preventing, the change. It is, however, tolerably certain that once it has taken place, complete and lasting reversion never occurs. The old florists were tireless in trying possible expedients to accelerate it, and so earn distinction by presenting some new beauty of flame or feather to an admiring brotherhood of fanciers; and their successors—no less enthusiastic, if fewer in numbers—still welcome a "good break." Yet "one man's meat is another man's poison," and to the commercial grower of the popular Darwin and cottage varieties breaking is a matter of grave concern, causing serious financial loss; hence Mr. Needham's timely appeal for research on scientific lines.

I am inclined to think the explanation of the "break" lies not in any special character of soil—light or heavy, rich or poor—nor in any extreme of climatic conditions. Neither do I regard it as a consequence of some mysterious disease, either air or aphis-borne. Rather I conceive it to be the cumulative result of centuries of an intensive method of cultivation with two main objects, *viz.*, the production of large bulbs, and the quickest possible increase of selected varieties. Be it remembered the tulip is the oldest cultivated bulbous plant of which we have records. It must have been assiduously

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grown in the East long before its introduction to Europe in the middle of the sixteenth century, and probably during the whole of that period it has been subjected, as in the present day, to annual lifting, drying off, storing and replanting. Small wonder, then if under such conditions it has acquired by inheritance a characteristic not found in any known truly wild species of tulip. While I cannot believe we shall ever entirely eliminate "breaking," it seems quite likely that occasional periods of cessation from the usual annual procedure might result in lessening or delaying it to some extent. May I suggest as an experiment the planting of sound breeders where they can remain undisturbed for three or four years—either English florists', old Dutch, Darwin or cottage varieties. The stock when lifted will, of course be small in size but enormously multiplied. If then planted out and treated under the usual nursery routine, it is my firm belief that during several ensuing seasons few or no breaks will appear. If warranted by results, it would be a simple matter to keep relays of each kind constantly "recuperating," and this would become a part of normal nursery practice.

The matter is so important to the bulb-growing industry in this country that it should be taken seriously in hand.—CHAS. J. FOX, *Moseley*.

CHRYSANTHEMUM SPORTING.

SIR,—I have had a dull pink variety for many years, and have wished for some others as hardy and prolific. This year a stem has come up with most attractive bronze yellow flowers on it. I have marked it and hope to get some basal cuttings from it, but I still wish for white, which is always in demand. Perhaps some readers of THE GARDEN may have found white sports.—J. H. POE, *Nenagh*.

HELIANTHUS SPARSIFOLIUS.

SIR,—I fully endorse the opinion given by the Rev. J. Jacob, in one of your recent issues, (page 583) as to the beauty and value of H. sparsifolius. I prefer to call it by the old name, as the newcomer, H. Monarch, proved to be identical in all respects—there was no difference whatever apparent when grown side by side. As to the origin of H. sparsifolius, this is said to be the result of a cross between the perennial H. rigidus and H. annuus californicus, and the unpleasant trick of dying off sometimes is no doubt due to the annual blood from the latter. Its worst enemy is stagnant moisture in winter, and in a well drained sandy place it has grown and flourished for years here without protection in winter. A good scheme is to lift a few plants in autumn and keep them during the winter in a cold frame, thus giving a fresh stock in hand in case some plants might succumb. The flowers appear on strong rigid stems during August, September and the greater part of October, and last a considerable time in water.—TH. HOOG, JUN., *Haarlem*.

MYRICA ASPLENIFOLIA.

SIR,—With reference to the article "Shrubs in Argyllshire," in the issue of THE GARDEN of October 31st, which gives a selection of rather tender shrubs suitable for the mild climate of western Scotland, I would like to say that the interesting little Myrica (Comptonia) asplenifolia is really absolutely hardy, and easily bears the inclemency of rough winters on the Continent. In neither a sheltered nor even a sunny position it survived the exceptionally hard winter of 1923, in which we had thirty degrees of frost; such a low temperature is doubtless unknown in any part of the British Isles. If there are really failures with that little shrub in some parts of Great Britain in the open, I think that it may be rather due to the fact that it dislikes lime, in the same way as its near relatives M. Gale and cerifera. The worth and charm of the whole of that kinship is their glossy, healthy leafiness, lasting here mostly till January.—DR. FRITZ LEMPERG, *Hatzendorf, Styria*.

GRAPES IN A COLD-HOUSE.

SIR,—I am enclosing a photograph of grapes grown in a cold vinery, which I thought might prove of interest to readers of THE GARDEN.

The variety is Muscat of Alexandria, and the berries are perfectly finished, although the season has not been of the best for ripening grapes without the aid of artificial heat.

Varieties grown in the same house are Black Hamburgh, Madresfield Court, Black Alicante and Alnwicke Seedling, and the vines are planted in an outside border. Ferns and flowering plants are grown in the house all the year.

The first two years I took charge of the gardens, the vines, although treated in the ordinary way, were a failure. The foliage and bunches being covered with mildew. I then treated them as follows, and for four years the vines have carried heavy crops, and no signs of mildew have appeared.

After pruning the rods are cleaned of all loose bark and dressed with a mixture of pure "Abol" and powdered sulphur, about half of each. This mixes to the thickness of ordinary paint, and is painted on with a brush. The vines are never syringed and unless the weather is very cold, the top ventilators are never completely closed. The house is kept as dry as possible, and when the vines are in flower the bunches are gone over each day with a rabbit's tail to distribute the pollen. The prevailing idea is that muscats require a lot of heat to bring them to perfection. Some of the bunches weigh over three pounds and are well finished. Therefore it appears that this grape may be grown with success under much cooler conditions than is generally accepted.—A. G., *Walmer*.

A FINE CROP OF MUSCAT OF ALEXANDRIA GROWN IN A COOL VINERY.

VIBURNUM CARLESII.

SIR,—The only honest course for one who has badly blundered is to acknowledge and apologise; wherefore, having recently in your columns stated that V. Carlesii is practically evergreen on the west coast, and having returned home to find all our plants of that species nearly bare of leaves, I confess that I was utterly wrong. It is undoubtedly deciduous; but whereas Mr. Hillier described this fine species as flowering before the leaves, here the fresh foliage comes with the flowers, as is shown in a faithful drawing made last May.—HERBERT MAXWELL, *Monreith*.

COLOUR VARIATION IN HYDRANGEAS

SIR,—I have been greatly interested in Mr. H. Avray Tipping's account of his hydrangeas in Monmouthshire (November 7th, page 625). Here in West Somerset one finds the same extraordinary variation in colour in different plants of the same variety growing perhaps only a few feet apart. This is particularly evident in plants grown in ordinary garden soil, and it seems well-nigh impossible to account for a pale blue and a dull rose form growing side by side on the ground of soil alone causing the variation. If cuttings are taken from the pale blue form there is no certainty that the resulting flowers will turn out to be the same shade as the parent plant, even if grown in the same garden. No doubt certain varieties are more stable than others, and if one finds the first variety attempted fails in colour, it is well worth trying another variety. Most people prefer a good blue to any other shade, and in many gardens it seems almost impossible to obtain it. Here, in a lime-free loam with a liberal addition of peat, I grow two varieties which come as beautiful a blue as one can possibly desire. The first variety to bloom is H. hortensis rosea. I believe it is of Japanese origin, and was introduced by Maries many years ago; the leaf is smaller and more deeply veined than in other varieties, and the trusses of flower are not so immense as most of the modern varieties. The colour is almost that of Gentiana acaulis. The other variety is Radiant, said to be a good crimson, but here a remarkably fine true blue; as it begins to flower when hortensis rosea is going over it forms a valuable succession. I feel sure that peat plays an important part in bringing the blue shades to perfection; some of my plants were put in a nursery bed with no peat added to the loam, and they flowered an unpleasant pinkish lilac colour. In another garden in this district where the soil is mainly peat the ordinary H. hortensis are all blue, though not such a fine shade as the two varieties referred to above.

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There is a very distinct variety of H. hortensis known as nigra (or cyanocladon), in which the stems are a glossy black; unfortunately, the flowers (in this garden, at any rate) are a rather poor pinkish shade, but the peduncles of the individual flowers are of such a charming crimson that it is worth some effort to induce the colour of the flowers to improve by giving it a different soil. I intend moving my plant to a peat bed where possibly it may turn either blue or a better pink.—N. G. HADDEN, *West Porlock, Som.*

ERITRICHIUM NANUM.

SIR,—I was very interested in a letter from Mr. Ascel Olsens in your issue of November 14th, in which he gave his impressions of Eritrichium nanum. I send you a photograph I took of it this summer in one of Farrer's favourite haunts on the heights above Mont Cenis.

I must shamelessly admit I am a heretic: I do not worship this plant. My own impression is that the spell of Farrer's wonderful pen, and perhaps also the spell of the mountains, have led people to overrate it. Granted it is a pretty little plant; but even if one could establish it in this country, I could name quite fifty alpines which I consider more beautiful. It is, after all, a dwarf forget-me-not with the blue flowers of its race and the peculiarity of the forget-me-nots of running into dull pink colours sometimes. Its foliage is compact and fluffy, but many alpines we grow in our rock gardens can boast of this. I think that much of the cause of its deification lies in the fact that away from its native haunts it is intractable. I wonder how long it would take this wave of enthusiasm to spend itself if Eritrichium nanum could grow and seed itself in our gardens like Erinus alpinus.—A. GAVIN JONES.

GARDEN RUBBISH.

SIR,—As the efficient disposal of garden rubbish is a problem of great interest in horticulture, may I add a modest contribution in support of the "Pyrford" method?

When visiting Pyrford Court Gardens in June last, among the many interesting items it was my privilege to witness this means of "conversion" of garden rubbish which Mr. Auton so clearly advocates.

From this method of controlled decomposition of garden rubbish, the residue seemed to me in no way impaired, but as matter having great potential mechanical and manurial values in a suitable condition for incorporating with garden soils.

That it has this value is amply testified by the results in quantity and quality of crops produced in the gardens at Pyrford Court.

Truth to tell, I doubted that such crops could be produced from such a soil with only converted rubbish and crude chemicals as the staple element of production, and spent some time in seeking a refutation of the statement, but found none.

This method appealed to me strongly as a really efficient means of putting to a practical use material of great manurial value which in most cases is considered a nuisance and "dumped" in any convenient out-of-the-way place, often to become a heap of putrefaction and a breeding ground for all fungoid and insect pests peculiar to a garden.

Nor do I think the "smother fire" or "incineration" method of treating garden rubbish a very great advance on the "dumping" system. This entails a vast amount of labour that can ill be afforded, and a serious loss in material of high nitrogenous and phosphatic value, although it gives in return a small quantity of potash that is rarely put to the best use.

Besides, such methods, to be useful, must be continuous, and then they become an annoyance in the neighbourhood.

To me, it seems that, with the same amount of labour and time, Mr. Auton attains all that is good in the scheme outlined by Mr. Macself, minus its disadvantages, plus a great saving of valuable material, of which the extract of gas is not the least.—WM. MCCARRELL, *Doune, Perthshire.*

SIR,—It is not clear from Mr. Tomalin's note (page 634) to what department of the garden he advocates the application of raw garden rubbish as manure. If it is for culinary or fruit crops, I am not competent to offer any opinion upon his practice; but I should not care to enrich a permanent flower border with "cabbage stalks, dead leaves, mown grass, etc." This may have good results in an alkaline soil—*i.e.*, one based on chalk or limestone; but applied to a cool, acid soil it would be sure to produce fungus in variety. Moreover, in cultivating flowering plants one does not want the soil to be uniformly rich. What suits a peony or a kniphofia would be the reverse of favourable for a dianthus or Lilium regale.

ERITRICHIUM NANUM ON THE HEIGHTS ABOVE MONT CENIS.

Those who have command of a supply of peat may have noted that, when properly treated, it enriches the soil to which it is applied as surely as leaf-mould does; but, unlike leaf-mould, it harbours no slugs or injurious insects, and is quite free from all vegetable seeds, except heath and rushes; nor does it afford a nidus for fungus. But it must not be applied raw. Freshly dug out of a peat moss it is surcharged with humic acid and if used in that state will prove injurious, and even fatal, to many fine plants. To make it safe for use either in the border or the potting shed, it must be thoroughly pulverised, passed through a coarse riddle and exposed to sun and weather. It then forms a clean and nutritious ingredient in a compost. Seedlings appreciate it highly, fixing their rootlets in its particles just as they do in leaf-mould. It is true that Mr. E. H. Wilson, whose intimate acquaintance with lilies entitles him to the confidence of all those who deal with that capricious genus, condemns the use of peat in their cultivation:

"All lilies," he says, "love leaf-soil, but a great many detest peat. I have seen L. Henryi grow 10 feet high in loam and leaf-soil, and continue to thrive for many years. I have seen this lily disappear completely in two years when planted in pure peat." ("The Lilies of Eastern Asia," page 4.)

Granted; but I am not advocating pure peat for any plant—not even rhododendrons. To enrich loam and gravelly or sandy soil I consider it as valuable as leaf-mould, and preferable, in that one does not convey with it the eggs of slugs and other subterranean robbers.

Before passing from peat, may I mention another form in which it is invaluable to amateur gardeners, namely, Sphagnol soap. Nothing I have known removes soil so quickly and smoothly from the hands as this soap, which derives its virtue from peat.

Wood ash is another fertiliser whereof the merit does not seem to be sufficiently esteemed; at least, one often sees a heap of it neglected and left to be soaked with rain, which washes out the potash, its most valuable ingredient and highly soluble. It is specially stimulating to bulbous and tuberous plants, as appears from the following note by Mr. Carl Purdy upon the effect of a forest or brush fire in California:

"In nearly every instance our Erythroniums are wild in brushy or wooded regions and in uncultivated areas, where during our dry summers brush or forest fires are common. Before a fire, I have often seen Erythronium californicum growing in brush lands to a height of six or eight inches, with but a single flower. After a fire it may be sixteen inches or as much as two feet high, with from four to sixteen flowers." ("Flora and Sylva" Vol. II, page 251.)

Finely sifted wood ash, with chips of charcoal among it, may be used with advantage in planting bulbs of all kinds; but the potash will be washed out of it before it takes effect as a fertiliser, and a fresh application should be made after growth has started—HERBERT MAXWELL, *Monreith.*

TWO GOOD GARDEN SHRUBS.

SIR,—I am very glad to see in THE GARDEN for October 31st that attention is drawn to two very beautiful garden shrubs that have been much neglected. I first saw Erica australis var. Mr. Robert at Kew in April, 1922, and was much struck with its beauty, and since then have watched for its appearance in some nurseryman's list, but up to the present have been disappointed. The other one is Arbutus Unedo var. rubra (or Croomei), which when flowering well is a wonderful sight on a sunny October day. This I have also tried to get, but have had no success. It is to be hoped now that these two scarce shrubs will become available for general garden planting.—R. B. COOKE.

CLIMBERS FOR WALLS.

SIR,—The following experience with climbers for a north and south aspect respectively may be of interest to readers. Four plants of Tropæolum speciosum were obtained in pots in November last and planted out against a north wall. The soil is a shallow loam on gravel, and as the house had just been built there was a certain percentage of builders' rubbish in the soil. During the hot spell in June each plant received a 2-gallon can of water every four or five days, and water has been given freely all the summer. The growth has been remarkable, one shoot making 26ins. in sixteen days. The plants were trained up twine, 8ft. 6ins. in height, five strings about 4ins. apart to each plant. Two Pyracantha Lalandei have also been planted against the wall, so that in a few years it is hoped to dispense with the twine.

For clothing an oak trellis arch, 11ft. high by 9ft. wide and 3ft. deep, over a French door facing due south, two Dutch honeysuckles were chosen on the advice of THE GARDEN. Both honeysuckles have reached the top of the arch and are clothing it rapidly, with sweetly scented bloom.—W. F. NEWMAN.

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LATE AUTUMN AT VINCENT SQUARE

THAT we have arrived at the dead season of the year was fully evident at the Royal Horticultural Society's Hall on November 17th last, on the occasion of the ordinary fortnightly meeting of the Society. The floral exhibits were few, consisting chiefly of begonias, chrysanthemums and carnations, and the hall, in consequence, had a distinctly empty appearance, which was made the more noticeable by the poor attendance. Fruit was represented by two exhibits, one arranged by Messrs. George Bunyard, and the other an exceedingly fine representative collection staged by the Hon. Vicary Gibbs. The quality, size and colouring of the apples especially were outstanding and reflected great credit on Mr. Edwin Beckett. As with shrubs and vegetables, Mr. Beckett certainly excels in the growing of fruit.

A very fine collection of winter-flowering begonias was staged by Messrs. John Peed and Son. The bright, yet soft and delicate, colouring was most marked in the hall, devoid of its usual gay tones. The plants themselves prove that they are indeed most effective for interior decoration during the winter months. The varieties which were staged showed their profuse flowering qualities and delicate shades of colour to the full. Among the varieties we noted the following: Eclipse, with beautiful salmon red flowers of a semi-double nature and set off to advantage by the glossy green foliage; Exquisite, bearing fine sprays of blush to deep pink single flowers, is a handsome variety; and Optima, which appears wonderfully free flowering, carrying abundant blossoms of a rich deep salmon colour.

Several good exhibits of chrysanthemums and carnations produced bright splashes of colour which relieved the dreary and otherwise barren look of the hall. The three well known carnation specialists staged representative collections. Messrs. Allwood Brothers showed carnations of various types, and Messrs. Stuart Low exhibited a large number of good blooms. On the stand of the latter firm, Lady Hindlip was an attractive variety; Sir Philip Sassoon, a beautiful deep crimson, and Eileen Low, the best of pinks, were also most noticeable. Mr. C. Engelmann had two new seedling carnations which he will put into commerce next spring. One was a bright red named Rouge, and the other an attractive pinkish red variety overlaid and flaked with deep red.

Mr. H. J. Jones had a large collection of chrysanthemums of all types admirably displayed. Many huge Japanese exhibition varieties were shown, including immense heads of the varieties Majestic, Queen Mary and Mrs. R. C. Pulling. The condition and shape of the blooms exhibited by Messrs. Keith Luxford were excellent. Ethne, Everbright and Commandant were three splendid new varieties. Mr. A. G. Vinten had an attractive collection of some of the best of the border chrysanthemums, including such fine mid-season varieties as Golden Wonder, Gloriosa, Golden Marvel, and Aldyth.

Tender and hardy shrubs were shown by Messrs. Stuart Low and Messrs. L. R. Russell. The latter firm exhibited variegated ivies, such as the large-leaved Hedera dentata variegata, also Juniperus pachyphlæa and J. Bermudiana, well berried sprays of Cratægus Pyracantha Lalandei, and several other interesting shrubs. A few attractive acacias covered with masses of yellow bloom were seen on the stand of Messrs. Stuart Low, the most conspicuous being A. platyptera, A. Baileyana and A. armata. Two excellent new apples, George Carpenter and Victory, were shown by Messrs. Brinkman Brothers. St. Brigid anemones were exhibited by Messrs. Reamsbottom; Helleborus altifolius by Mr. Scarse-Dickins; and an interesting collection of photographs of gardens, designed by the garden architect Mr. Percy S. Cane were on view.

NEW AND RARE PLANTS.

AWARDS OF MERIT.

CHRYSANTHEMUM CLIO.—Shown by Mr. H. Shoesmith, jun., Woking. Described under "New Chrysanthemums."

CHRYSANTHEMUM CRIMSON DAWN.—An excellent single variety bearing well-proportioned flowers. The ray florets are of a dull deep crimson colour and radiate outwards from a fairly large yellowish green eye. The florets are daintily reflexed. Shown by Mr. J. Shoebridge, East Grinstead.

CHRYSANTHEMUM ENTON BEAUTY.—Shown by Mr. W. Hall, Witley. Described under "New Chrysanthemums."

LEONOTIS LEONURUS "THE WARREN" VARIETY.—Flowering sprays of this fine winter-blooming rather tender shrub were shown. The flowers are most distinct, being of a bright orange colour and very hairy. The corolla is three times as long as the calyx, which is rather arched. The flowers are borne in dense whorls from which arise two opposite lanceolate leaves. It is a most ornamental shrubby perennial and will be found exceedingly valuable for winter decoration. Shown by Mr. E. M. Preston, The Warren, Hayes.

GALANTHUS BYZANTINUS NOVEMBER.—An early-flowering form of this fine snowdrop which in no way appears to differ from the type, save that it flowers much earlier. The flowers were borne in some fine spikes and may have been a shade smaller than in the type. It is an exceedingly graceful and handsome species. Shown by Mr. Charles T. Musgrave, Godalming.

ORCHIDS.

AWARDS OF MERIT.

CYPRIPEDIUM BALDUR MAGNIFICUM (G. F. Moore × Niobe).—This elegant hybrid is a marked improvement on the well known Cypripedium Niobe. The dorsal sepal is flushed with rose and has a pretty venation of deeper rose colour over its whole surface; the petals are broadly crisped on their upper margin, tinged with reddish brown and marked with lines of a darker colour; the labellum well proportioned and of mahogany red. Shown by Lieut.-Colonel Sir George Holford, K.C.V.O., Westonbirt, Tetbury, Glos.

BRASSO-CATTLEYA ROSITA (C. aurea × B.-C. Ilene).—One of the prettiest of the Brassavola hybrids, the large flower being of rose pink colour, the expansive labellum having an outer zone of dark purple, and with the inner area bright yellow; the sepals have a marbled appearance produced by the yellowish ground colour showing through the rose pink. As in the majority of these hybrids, the labellum is effectively fringed. Shown by Messrs. Stuart Low and Co.

CYPRIPEDIUM ROSALIND (Niobe × Reginald Young).—A fine addition to the Niobe section of cypripedium hybrids. The dorsal sepal is prettily marked with purplish venation and dotting; the petals are yellowish, but much covered with dark longitudinal lines and spotting; the labellum somewhat roundly formed and tinged with mahogany red. The influence of C. Fairrieanum, derived from the Niobe parent, is clearly visible. Shown by Messrs. Sanders, St. Albans.

NEW CHRYSANTHEMUMS.

The Floral Committee of the National Chrysanthemum Society considered the merits of a large number of new varieties on Monday, November 16th, and awarded first-class certificates to the following:

AJAX.—A superb Japanese variety which has all the attributes of a first-rate exhibition bloom. It is a very large, beautifully formed incurving variety with broad florets which are lightly flushed with pale carmine on the surface and coloured bright yellow on the reverse. Shown by Mr. H. Shoesmith, jun.

CLIO.—This is a Japanese variety of what is now known as market size. The blooms are very shapely and of most uncommon and fascinating colouring, which, by daylight, is a delightful rosy puce and, under artificial light, becomes a fascinating bright rosy terra-cotta. Shown by Mr. H. Shoesmith, jun.

ENTON BEAUTY.—A valuable variety of good decorative size and rich velvety crimson colour, lightly touched with maroon. Shown by Mr. W. Hall.

JESSIE MCNAB.—A large single possessing several rows of bright canary yellow florets, attractively rolled at the tips. Shown by Messrs. Keith Luxford and Co.

MRS. F. BRILL.—A large single of deep rose pink colour heavily overlaid on white ground except around the disc where it forms a white zone. Shown by Mr. G. Carpenter.

R.A.—A fairly large incurved variety of value for decorative purposes rather than the show board. The broad florets are of rich yellow colour, and there is a bronzy glow in the heart of the flower. Shown by Messrs. Cragg, Harrison and Cragg.

GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants.

FLOWERS

CULTIVATION OF SWEET PEAS.

I AM well aware that when one's soil is in "good heart," just digging it over in the autumn about a foot deep and using no manure whatever will often result in a wealth of good blooms for beautifying the garden and home, but by adding a dressing of animal manure the quality of the blooms will be doubled or trebled. Trenching the ground from 2ft. to 3ft. deep will give one still better sweet peas; indeed, trenching is quite necessary should one wish to exhibit successfully in keen competition. Even when the winning of prizes is not one's objective, a fairly elaborate preparation of the soil will be found more than worth the extra labour and expense involved. I will, therefore, describe the methods adopted in exhibition culture, leaving my readers to modify or amplify them as circumstances permit.

The choice of the most suitable plot or site for the sweet pea in one's own garden is not unimportant. It should be chosen carefully, with one eye, so to speak, on the requirements of the plants during their flowering period. In the first place, it should be open to the sunshine all the day, unshaded by trees or buildings, have a good depth of soil, and should not be drained by the roots of large trees. On the other hand, soil which is liable to become waterlogged as a result of excessive rainfall or through watering and feeding, should be avoided, while it will be found very convenient, later on, if it is situated near the available water supply and sheltered somewhat from the usual direction of the wind.

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Although perhaps of no great importance, all these little points are, nevertheless, well worth taking into consideration.

On heavy land with a clay sub-soil the ground is best trenched all over the entire plot, otherwise the trenches simply act as catch-pits for surface water, and "bud dropping" or other more serious ills may result. If this is not convenient, take out trenches about 2½ft. wide and 2ft. or 2½ft. deep, if possible running from north to south, allowing at least 2ft. between the edges of each trench. The untrenched portion can then be worked the following season, thus ultimately enriching and moving the whole plot in two years. The usual procedure is to throw out the top 10ins. or 12ins. on one side of the trench, and the second layer on the other. Then break up the bottom roughly, mixing in a dressing of animal manure, or on soils likely to become waterlogged throw anything into the bottom that will act as drainage, such as crocks, stones, hedge clippings, or any garden refuse.

Before proceeding with the actual method of trenching, I should like to say a few words about manures. In the first place, those of an organic nature are to be preferred to chemical fertilisers. Where horse and pig manure for the heavier soils and cow or sheep for those on the lighter side can be obtained, there is no need to bother much about any other fertilisers. It is, of course, quite useless to incorporate anything of a quick-acting nature, or its benefit will be wasted, rinsed away by winter rains. Rather mix in manures which will disintegrate comparatively slowly, as animal and most other organic manures do. Bone meal and basic slag are good, so are wood ashes for the phosphates they contain. Poultry and pigeon manures are stronger and quicker acting than farmyard manures, but are quite suitable if used sparingly when preparing the soil. I should, however, regard them as more useful for feeding purposes when applied as top dressings during the flowering period. Sometimes it is impossible in semi-suburban and other districts to obtain good animal manure, and in such cases I recommend a mixture of leaf-mould (or spent hops) and bone meal (or meat meal).

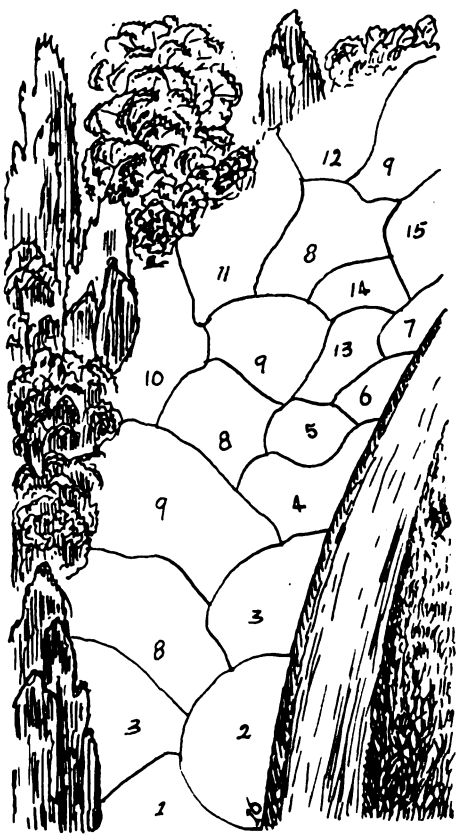
To return to actual trenching. Replace the soil taken from the trench in its original order, the top soil on the top and the second spit underneath. In replacing the latter, well mix in a liberal dressing of whatever animal manure or manures one has decided to use, at the approximate rate of one barrow-load to every 4yds. run of trench, or less if the soil is fairly rich. *It is important that the manure be well mixed and pulverised in with the soil*, and not placed in a layer. Burnt wood ashes and bone meal can also be mixed in with this layer at the same time with advantage. No animal manure should be incorporated in the top layer, but basic slag and more bone meal may be used, a good handful of each to the square yard being sufficient. If one's soil lacks lime, a good dressing of this should be scattered on the surface once every two or three years. Too frequent applications of lime tend to impoverish the ground, and this also is more or less true of chemically compounded fertilisers, generally speaking. In this connection I may add that it is wise to make organic manures the foundation when preparing one's soil for sweet peas, using the non-organic fertilisers only as stimulants at intervals during the flowering period by way of "pick-me-ups" when necessary. I hope to have the opportunity of commenting further on this point in future notes.

After the trenching operations have finished, leave the surface quite rough, and keep off it until transplanting time, when it will readily break down into a powdery condition.

C. H. A. S.

THE ODD CORNER HERBACEOUS BORDER.

THERE are many odd corners in our gardens that are not particularly beautiful at the present time, chiefly because they are not suitably planted. I have seen many corners and recesses of this kind that were suitably planted, and very charming and attractive they were, too. Now is the best time to carry out the necessary work—grubbing out old stumps, shrubs and plants, foreign matter and weeds. Then the ground should be trenched, rotted manure put in and everything made ready for the work of planting in due course. If there are large trees growing near, great success must not be looked for on account of trouble from their roots. But small shrubs may not cause serious trouble in this respect. I have made a plan which will be a guide as to the way in which such corners and recesses may be planted. If the border is deep, then some tall-growing kinds of herbaceous subjects should be planted near



the back—not too close to any existing background shrubs. If the border is narrow, then select dwarf and medium-height plants. The numbers 1, 2, 3, 4, 5 6 and 7 should contain dwarf-growing kinds and varieties; 8, 8, 8, subjects growing a little higher than the majority occupying the background clumps, namely, 9, 9, 9, 10, 11 and 12, and so on. Then may be planted, at certain intervals, several clumps of one kind of plant in various shades of one colour, as shown at Nos. 13, 14 and 15. No. 16, a suitable tile or live edging. Nurserymen will supply suitable kinds for such positions if they receive a rough plan and the space. —G. G.

GENTIANA SINO-ORNATA.

I FEEL sure that this plant would be more generally grown, seeing that it is so easily propagated, if one did "not" read the instructions usually given, that is, being a difficult plant and must have leafy or peaty soil. My experience with it might be exceptional, but it is exactly the reverse of the advice given. The first plants I had, I put in three different soils, peat, leaf-soil and pure loam. The ones in peat died after the first year, those in leaf-soil, though still living, have always looked very sickly and never produced more than three or four flowers to each plant, but the best plant has spread in three years to a solid mat 2½ft. square and has 173 flowers on it. I have just counted them to-day (November 2nd). This was planted in pure loam from the field.

More promising still are some cuttings and runners, partly rooted, which it produces freely, which I took off in March of this year, growing them on in pots till May and then planting them out into ground which had up till then been part of a lawn. This soil is a very clayey loam and was trenched sufficiently deep to cover the overturned turf, and no addition whatever. The young plants now are looking very robust and have from three to seven flowers each.

G. Farreri promises to thrive in a similar soil, but for some strange reason wireworms bite through the crowns just below the surface of the ground, although they never attack G. sino-ornata, which is growing next to it.

I saw the other day what I think must be a cross between these two varieties, and will no doubt be in great demand when it is known.—B. LEACH, *Epsom*.

TREES AND SHRUBS

PLANTING BROOMS.

BROOMS, including genistas and spartiums, are generally believed to be difficult things to transplant. This may be true of plants which are too old and woody, but even with these, say, plants up to 4ft. or 5ft. high, the greater part of them will move safely enough if the work is done in autumn or spring and one takes the precaution to cut back all the leading branches to about half way. This, as a matter of fact, is often desirable in much younger plants, for it not only renders success more certain but it encourages a more bushy growth.

We put in a good many brooms each year, and the method of planting is a simple one. The soil is never prepared in any way and the firmer it is set so much the better. A spade is the only implement used, and it is thrust straight in to its full length and worked to and fro until a slit wide enough to take the root is made. The plant is then slipped in and trodden well. We find that plants put in thus almost invariably do well and are less liable to shake loose than are those planted in soil recently dug.

So many brooms come so freely and so true from seed and grow so quickly that we prefer seedlings to any other. They are also naturally more vigorous than those raised by cuttings or grafting. But there is another objection to both the cutting and the grafted plants. Neither of them seems to take such a good grip of the soil, and the grafted ones have a bad habit of snapping off at the union as soon as the plant gets any weight of head. Some kinds cannot, of course, be propagated in any other way, but one can do a good deal for many grafted specimens by planting deep and in firm soil as I have suggested. I have never observed that brooms have any objection to being planted much deeper than one would place most shrubs.—A. T. J.

DAVIDIA VILMORINIANA.

WHEN Père Farges first sent seeds of Davidia Vilmoriniana from China in 1897 to M. Maurice de Vilmorin, only one out of a package of thirty-seven seeds germinated, and that not until two years after sowing. Later, large quantities of seeds were sent home by Wilson to Messrs. Veitch, and to

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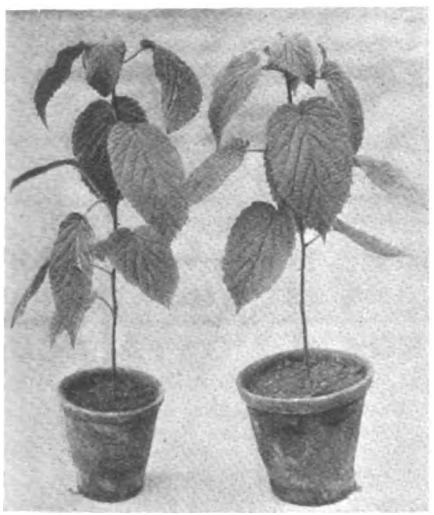
these seeds we owe the present distribution of the tree in our gardens to-day.

Wilson's seeds, like those of Farges, took a long time to germinate. It is difficult to say whether or not the acclimatisation of the tree in our gardens is responsible for the production of seeds with a quicker germinating power; but on October 29th, 1924, I gathered several seeds of Davidia Vilmoriniana in excellent condition and divided them into three groups, and sowed them the same day as follows:

(1) Seeds were cleansed of all pulp and sown in pans under glass, in gentle heat: a few of these germinated in the spring of this year.

(2) Clean seeds were sown out of doors about 2ins. deep in a nursery bed, where they remained undisturbed until March, when they were examined, and it was found that nearly all had commenced to germinate. Each seed was dug up and given a separate pot and placed in very gentle heat in a propagating pit, where they soon developed into vigorous young plants. In some instances two seedlings grew from one seed. When necessary, the plants were potted on and placed in a cold frame, where they continued



ELEVEN MONTHS' OLD SEEDLINGS OF D. VILMORINIANA.

to grow throughout the summer. The two illustrated are typical examples, and at the age of eleven months from sowing they are 18ins. high.

(3) Seeds were sown outdoors without being cleaned, and also examined in March, but none showed signs of germination.

Many readers of THE GARDEN desirous of raising plants from their own seeds may benefit by this experiment. It may be said, however, that Davidia Vilmoriniana does not appear to be fruiting so freely this year. Where possible, layering provides a good method of propagation. Cuttings, according to some authorities, will root, but, although I tried many times I failed to propagate the plant by this means until it was suggested to me that—as in the case of many "difficult" plants—cuttings should be taken from a plant growing under glass. So, finding a seedling with a double leader, I removed one shoot and inserted it as a cutting. This rooted within a fortnight, but does not grow with the same vigour as a seedling. Leray, writing in THE GARDEN of July 11th, 1925, is inclined to the view that, although three species of davidia are in cultivation, they may, for purely horticultural purposes, be grown under the name of Davidia involucrata. Generally speaking, in England we find the smooth-leaved species which Dode has named Davidia Vilmoriniana grows best, flowering and fruiting in most seasons very freely. An excellent photograph of a typical fruiting branch appeared in THE GARDEN for 1924, page 620.

Davidia involucrata was introduced by Wilson in 1906 and appears to be a scarce plant. Indeed, there is only one plant at Kew. It would be interesting to learn how many readers of THE GARDEN possess the true plant. It is distinctly felted on the under surface of the leaves and does not appear to have the same vigorous constitution as Davidia Vilmoriniana.

Dode calls a third species Davidia laeta, but this name is generally sunk under that of Davidia Vilmoriniana.—F. P. KNIGHT.

FRUIT

FORCING STRAWBERRIES.

THESE subjects are often neglected at this time of year, owing to the rush in getting chrysanthemums and other plants under glass before hard frost appears, hence it is that they need careful overhauling as soon as possible. Weeds and straggling runners should be removed and where worms have put in an appearance, the plants should be taken out of the pots with the soil complete, and examined and all worms removed. One way of searching for worms is gently to tap the soil with a flat piece of wood, and should there be any hidden in the roots, they will quickly try to escape. Where fine worm cas s are seen on the surface, lime water will prove an effective destroyer.

The plants will now need to be removed to a cold frame for the winter, but on no account should the lights be put on only when there is a deal of heavy rain. They should be tilted so that there is a good current of air circulating all the while. The frames used should be well dusted with fresh slaked lime and plenty of ashes covered over the bottom before putting in the plants. Strawberry plants in pots do well on the floor of a late peach house, providing the ventilators are kept open day and night, only closing them down when hard frost appears. The plants will just require keeping nicely moist and no stimulant should be given. Towards the end of January some heat should be put on. A temperature from 45 to 50 degrees will be ample to commence with, which should be gradually increased as the days lengthen out. Great care should be taken however not to have a high night temperature, as this is injurious to the plants.

An occasional syringing with a fine spray will be beneficial and when the flowering trusses appear some well decayed manure should be put under the pots. All trusses should be as near the glass as possible so as to get full benefit of the light. This will induce the plants to throw out roots into the manure, though the drainage hole. At this stage a little stimulant should be given them, and when all the flowers are out a rabbit's tail on the end of a stick should be passed over them when the pollen is dry, and, if a fine buoyant atmosphere is maintained the flowers will soon set. Any flowers that fail to set should be cut off, this will assist the plants to swell the fruits that have formed. As the fruits get a fair size the plants, if they are in a batch, should be tied up separately, or where there is only one row of plants a string is passed on a few sticks along the front of the row of plants.

VEGETABLES

FORCING RHUBARB.

AS soon as the leaves and leaf-stalks of rhubarb have died down and withered away, the roots may be lifted, especially if very early supplies are required; but as a rule the latter part of November or early in December is quite soon enough to begin operations. It is usual to lift a quantity of roots and leave them exposed on the ground for several days before they are placed in the forcing house. One might be careful to perform every cultural detail and yet not get satisfaction, so it should be pointed out that there are several varieties of rhubarb in cultivation, and an early variety should be selected for forcing purposes. It should also be stated that when strawy manure or other protective material is placed over and around the crowns out of doors, the naturally early varieties will push up and supply sticks for using some considerable time in advance of later kinds treated in a like manner, proving, if need be, that only varieties known to have "the quality of earliness" should be selected and grown for forcing purposes.

The roots when brought into the forcing house should be placed close together and all spaces between the crowns packed with leaf-mould or fine soil. No water need be given now, but when conditions are likely to become dry the watering pot should be freely used. Where no specially constructed forcing house exists, one need not be without supplies, as rhubarb roots can be forced quite eas ly underneath the greenhouse staging, provided darkness, moisture and a genial warmth are maintained, these being the three main requirements in the treatment of lifted roots. Succession batches should be introduced to heat at intervals of three or four weeks or as kitchen requirements demand.—D. ARMSTRONG.

PROTECTING WINTER GREENS.

TO some persons these are uninteresting plants, to others they possess a beauty all their own, and to all they are useful. The season has come when many plants may suffer injury from frosts, especially those specimens that have been grown in a rich loose soil. I recently saw a splendid batch of such plants, which will, if the winter is a mild one, do well, no doubt; but if the weather comes in severe spells, these and similar plants will suffer a great deal. Not much can be done now to remedy loose soils as the rooting medium, but earthing-up will greatly benefit all winter greens. Many years ago we experienced about eleven weeks of severe frost. I had one acre of winter greens, and just before this very severe spell of frost came soil was drawn up to the stems, burying the latter up to the basal leaves. While thousands of similar plants perished, mine remained sound: we lost about 2 per cent. The frost affects the stems where they are most succulent—just below the leaves—and if this part is buried under soil, made quite firm, the plants will survive really hard weather. Cauliflowers are best in rough frames, but exposed to the weather night and day except in frosty weather, then they will be fine sturdy specimens to plant out next spring. The due removal of yellow leaves tends to cleanliness and good health of plants, too.—GEORGE GARNER.

CROPPING KITCHEN GARDENS.

THE subject of cropping the ground in kitchen gardens embraces the preparation of the soil, the insertion of the seed or plants, their after-cultivation, the gathering of the crop and the system according to which one crop is made to follow another. As the discussion of all these points, however, would involve the repetition of what is already known to every practical gardener, this note is limited to what is called the succession of crops.

Successional cropping is that in which the ground is wholly occupied with one crop at one time, to be succeeded by another crop, also of one kind: for example, onions to be followed by winter turnips, or potatoes to be followed by kale.

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Simultaneous cropping, is that in which several crops are all coming forward in the ground at the same time: for example, onions, lettuce and radishes sown broadcast, or peas, potatoes, broccoli and spinach sown in rows.

Permanent cropping is when a crop is remaining on the ground for several years, such as seakale, asparagus and strawberries, etc. The object to be attained by a system of cropping is the greatest quantity, and the best quality, with the least possible expense, and in order that these objects may be obtained there are certain principles which ought to be adopted as guides.

Crops of plants belonging to the same family or tribe should not follow each other, plants which draw their nourishment chiefly from the surface of the soil should not follow each other, but should follow alternately with those drawing their nourishment from the sub-soil. Plants which remain for several years on the soil should be succeeded by a crop of short duration. Plants the produce of which is gathered in the summer should be followed by those whose crop is gathered in the winter. These rules and others of a like kind, apply generally to the different systems of cropping.

Successional cropping.—The plants suitable for this mode of cropping are those that require during all the periods of their growth, the fullest exposure to light and air, and also remain a considerable length of time in the soil, such as potatoes, onions, carrots, etc.; if any of these crops are grown under a shade they are affected both in quantity and quality. Therefore, successional cropping must be carried out in a breadth of 20ft. or more, between rows of tall-growing crops.

Simultaneous cropping is founded on the principles that the plants for the greater part of their existence thrive best in shade, and that the plants which require light on each side should be sown or planted at some distance from each other. Such as tall growing peas are sown 10ft. apart, and between them species of cabbage, and again between these, rows of lettuces or radish, etc., the idea being to have crops on the ground in different stages of growth so that the moment the soil is released from one crop, another may be in an advanced stage and ready to take its place. For this purpose whenever a crop is removed its place ought to be at once supplied by plants for producing another crop of the proper nature to succeed it. When rows of peas have rows of broccoli between them, the moment the peas are removed, a celery trench may be prepared, and between the rows of broccoli, where lettuces were produced in their season, spinach may be sown.

Permanent cropping requires no further explanation than what has been given in the treating of the subject generally.

Of these three forms of cropping, the first is not suitable for poor soils, or where manure is limited; the second cannot be a success except when the soil is on the light side and fairly rich; the third cannot be said to be influenced by the soil in any way.—G. I.

MISCELLANEOUS

HOW TO TREAT AND USE FALLEN TREE LEAVES.

I CAN quite understand a lover of a garden envying those who have available an unlimited supply of freshly fallen tree leaves, especially those of beech, oak and birch. With the leaves, however, there are many bits of wood, mostly rotted stems and twigs, and these should be picked out carefully, as, if left in, when the leaves begin to heat, they turn mouldy and fungus results. There is wisdom in having three heaps, one of leaf-soil ready for immediate use, one of half-rotted leaves, and one of freshly gathered leaves. The heap of leaf-soil, first referred to, is so useful for sifting and mixing the finest portion with soil for sowing seeds of begonia, primula, cineraria, calceolaria, cyclamen and similar kinds in, as well as those of true annuals and biennials. The second heap referred to provides valuable half-rotted flakes, so useful to mix with soils to form potting composts, as the decay of these flakes still goes on in the pots and forms good food for the roots of the plants in them. Furthermore, in the actual heap form, if it is large enough when opened out to a depth of 2ft. or so, this leaf-soil is splendid for growing early potatoes, carrots and radishes in when a small quantity of good soil has been placed on the levelled surface. The leaves gathered this autumn will be found very useful in the formation of hot-beds and for packing, inside wire netting, around frames and pot plants to keep out frost. They also do this if placed on the roots of choice trees and shrubs, being held in position by scattering a small quantity of soil on them. In mould condition they are splendid for bulbs.—CHRISTCHURCH.

SAXIFRAGA VALDENSIS.

IT has been well said of Saxifraga valdensis, that it is frequently seen in catalogues, but rarely, indeed, in gardens or nurseries. It appears always to have been rare in these, but casting back one's memory to the days when saxifrages were comparatively few and far between, when those in cultivation were possibly more carefully tended, it was more plentiful. At least, I seem to have seen it more frequently thirty-five years ago than now. So I was greatly pleased when I saw it in a nursery the other day, tiny, close-growing, healthy plants and had a further opportunity of comparing it with S. cochlearis minor, which is frequently grown for it and not seldom sent from nurseries instead of S. valdensis. The two are wonderfully near each other in general appearance, yet to the initiated, the distinctness is quite apparent. Farrer describes the difference in the foliage in a somewhat colloquial, but definite way. He tells us that the leaf-tip of S. cochlearis minor is widened out, but flat, while that of S. valdensis is more or less puffed up and fat as well. The difference in flower is more marked, however, when the plant does flower, as the blooms of S. valdensis are borne in a fewer-flowered and denser truss on a glandular stem, while the sprays of flowers of S. cochlearis minor are on 4in. to 6in. stems, which are barely glandular and the trusses are looser and the flowers more numerous. The blooms are pure white and the effect of a plant in bloom, with the ruby-glanded stems bearing their close truss of white flowers above the densely packed blue-green foliage, is exceedingly charming. It is one of the choicest of the kabschias and should be grown tightly jammed between pieces of non-calcareous stone.—S. A.

CATALOGUES RECEIVED.

Messrs. Oliver and Hunter, Moniaive, Dumfriesshire. List of rare seeds, containing many fine primulas and a unique collection of lilies.

FOREIGN.

Messrs. Sluis and Groot's, Enkhuizen, Holland. Wholesale price lists of flower and vegetable seeds.

M. Herb of Naples sends us a catalogue of 1926 novelties of his own raising, and among them are some very fine varieties of gaillardias, Chinese asters, salvias, zinnias, and begonias, as well as such foliage plants as coleus.

Messrs. L. Férard, 20-22, Rue de la Pépinière, Paris.—Lists of bulbous plants, such as narcissi, hyacinths, tulips, eremuri, amaryllis, also a collection of irises, giving some of the best varieties, and a selection of roses, herbaceous plants and fruit trees.

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WHAT IS A PLANT?

IT is often said that a little learning is a dangerous thing. Quite so. There are, however, occasions when a little learning is not so dangerous as no knowledge at all. There are degrees in this old adage, as well as in any other proverb. For instance; we know that bread is the staff of life, that it is made out of wheat, ground, mixed with yeast, salt and water, allowed to rise and then baked in an oven. We also know sundry other facts about our food: that if one swallows half a pound of raw rice it swells inside and one gets an extreme feeling of discomfort, if nothing else; that chocolate is a staver off of hunger; that meats are boiled and the essence nourishes us. How many people know how a plant assimilates its food?

Most people know how a strong wind or a scorching from a hot sun dries and tans the skin, how frost on wet skin causes chapped hands, how consistent bad weather depresses us. How many know how changes in temperature, sun, wind and frost affect a plant?

Most people know how if one stands about in wet shoes one catches a chill, how a house in a low, marshy position is often the cause of rheumatism, how excess of lime in water is supposed to form goitre. How many know in what way undrained positions or soil conditions influence a plant?

How many ordinary gardeners know anything about the whys and wherefores of a plant's existence? Very few. Some people will probably say that it is foolish to point out the necessity of knowing how and why a seed germinates and how a plant lives and dies. They say that they know if a plant is alive or dead, and that is enough; the rest is the business of the botanist.

They are wrong. If they want to get to the bottom of the enormous subject of horticulture, as all real gardeners should, an elementary knowledge of the structure of what they are growing is not only advisable, but a necessity.

A week or two ago I mentioned the necessity of disturbing the roots as little as possible when planting or transplanting a tree or shrub. From the number of letters that have been sent in, it is obvious that quite a large percentage of gardeners notice that certain plants move well and others badly, and wonder what the reason is. The letters also show how few people have the slightest idea of what is taking place below ground. There are many questions which even the greatest botanist is unable to answer; for instance, why certain plants are calcifuge and others calciphil. Most questions, however, about the reasons for the well being or otherwise of plants are answerable and many of them depend upon a knowledge of the structure of the plant.

One of the troubles attendant on the subject of botany is the technical language that has grown around the science. Perhaps this is unavoidable, but at any rate this maze of technical terms has frightened away many who would otherwise have been willing to have learnt the rudiments of botany. There is too definite a cleavage between the botanist and the horticulturist. The latter is frightened of the former, while the former often considers the latter a nuisance. If only the horticulturist would realise that botany is empirical as well as theoretical and that the botanist can help him enormously in gardening matters. The botanist could also meet him half way and try to round off and simplify his mother tongue so that it is possible for the horticulturist to understand what the scientist is driving at. There is a great gap to be bridged between the two, but the junction should not be an impossibility.

So strongly do I believe that a little knowledge of plant structure will help people to a closer understanding of their plant's requirements, that a series of articles on plant structure has been written for THE GARDEN, the first of which is given in this week's issue. These have been written in as simple a form as possible, and are, I am sure, readily understandable by all who have gardens. The first describes the plant cell; then follow descriptions of the root and its activities, the stem, the leaf, the flower, and finally the fruit. They all have their use and importance in the life of the plant, just the same as the lungs, the stomach and the skin of an animal.

Not everyone is of a sufficiently enquiring turn of mind to try to understand the basic reasons for what goes on in plant life. In any case, these articles are not written solely for his edification. They are, however, written in order that the ordinary gardener may learn something about facts which are as important to the plant as the knowledge a man has that if he does not change his wet boots he will catch a cold or a chill.

E. H. M. C.

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

CYMBIDIUMS, by Gurney Wilson.

BIRCHES (*continued*), by E. H. Wilson.

TREATMENT OF GRAPE VINES.

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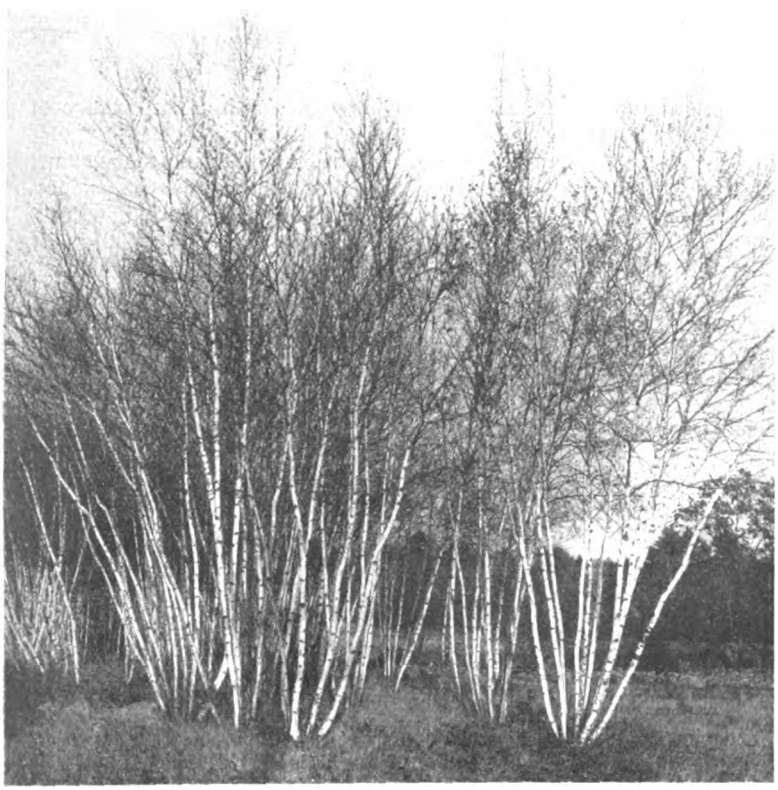
THE BIRCHES

BY E. H. WILSON.

AMONG TREES BIRCHES ARE PROBABLY UNSURPASSED FOR DECORATIVE VALUE. WITH THEIR GRACEFUL HABIT AND PICTURESQUE TRUNKS THEY ARE USEFUL BOTH AS SPECIMEN TREES AND FOR GROUP PLANTING.

BIRCHES are handsome, fast-growing trees to which greater attention ought to be paid in landscape plantings. There is much character in the bark, and the slender branches form a light and feathery crown of singular grace and charm. The genus is essentially a Northern one, ranging from the Arctic Circle to the Tropic of Cancer, with its greatest development in the Cold Temperate regions. Its southern limits are the Yunnan province of south-western China and the Himalayas. About forty species are recognised, nearly all being in cultivation in gardens like Kew and the Arnold Arboretum. Some, like Betula nana, B. glandulosa, B. fruticosa, B. humilis and B. pumila, are low, broad bushes, and B. Potaninii is prostrate, the branches often hanging down the face of cliffs. But the great majority are trees of varying size, and it is these with which this article deals.



A COLONY OF BETULA POPULIFOLIA, THE GREY BIRCH OF N. AMERICA.

The birch as a genus is singularly well equipped to perpetuate and spread itself, though it is a light-demanding tree. The male and female flowers are borne in catkins, separately but on the same individual; they are pollinated by the wind, and the fruit ripens early and disintegrates; the seeds are very light, are provided with wings, and are easily transported by the winds. Many of the white birches flourish on the poorest of gravelly soils and, being of gregarious habit, quickly form thickets and woods. All the species should be raised from seeds, and it takes but a few years to obtain trees of good size. Sow the seeds on the surface of prepared light soil, throw a thin layer of brushwood over the beds, beneath which the seeds will germinate freely and the seedlings make rapid growth. Transplant in nursery rows and, later, into final positions. Nothing in the art of raising trees is simpler than the requirements of birch. Forms of special merit, pendulous, cut-leaf, etc., should be grafted on the parent species. Though many white birches will grow in the poorest of gravelly soil, they do not object to good loam, a soil best suited to the members of the genus at large.

The majority of birches are hardy and amenable trees in the British climate. The one deciduous-leafed tree most readily recognised is surely the white birch, Lady of the Woods, of which there are about nine different species. In size and timber value the white birches are exceeded by many others; but in distinctiveness, in grace and in beauty they are certainly not surpassed. The white birches of Europe and north-western Asia (B. verrucosa and B. pubescens), of north-eastern Asia (B. japonica) and of North America (B. populifolia) inhabit the open waste places of the northern hemisphere, where they cover vast areas and often form pure forests of great extent. Moreover, they, like the aspens, are natural nurses for more valuable trees, such as larch and spruce.

Under the name of Betula alba, Linnæus confused the two white birches so abundant in Europe and northern Asia far into Siberia. These are now known as B. pubescens and B. verrucosa, the former being distinguished by its hairy and the latter by its warty branchlets. B. pubescens is the smaller and less important tree, and is partial to moist places. On mature trees the bark is dark, fissured and rugged at the base of the trunk. The best form is the var. urticifolia, a native of Sweden and characterised by its long drawn out leaf apex. B. verrucosa has silvery white bark on the trunk and main branches, polished red-brown branchlets clothed with glandular warty excrescences and pendent tips. There is no more graceful and beautiful tree than this Lady of the Woods, which, though usually about 60ft., is sometimes as much as 100ft. tall. There are several named varieties, including one (fastigiata) with erect branches and columnar habit like a small Lombardy poplar. Another, Young's weeping birch, is singularly charming with its slender hanging flagellate branches, and is the best of several weeping forms. A good variety found wild in Sweden is dalecarlica, with deeply laciniated and coarsely toothed hanging leaves and pendent branchlets.

The American homologue of the white birch is B. populifolia, the grey birch, a small tree rarely more than 30ft. tall, with a slender trunk, tumid at the base and often with a cluster of stems diverging from a common root stock; the bark is compact, firm, dull chalky white, bright orange on the inner side, with dark triangular markings at the insertion of the branches, shallowly fissured and nearly black at the base of the trunk. Very abundant from Nova Scotia southward through New England and westward, this has triangular lustrous green leaves and is a most aggressive, if short-lived, tree, springing up in quantity on abandoned farmlands and in fire-swept forest areas, growing rapidly in the poorest soils and forming a useful nurse to the seedlings of more valuable trees. Very similar, but with ovate, dull blue-green leaves and tinged with pink bark, is B. cœrulea, the blue birch. This is also a small tree native of Canada and northern New England.

Stateliest of all white birches is B. papyrifera, the canoe or paper birch of North America, with polished white bark freely separating into thin layers. It is not a very tall tree, for it seldom exceeds 70ft. in height, but the trunk is thick, from 7ft. to 10ft. in girth, and is clean of branches for three-fourths of its height. It has a small crown of comparatively few, thick branches, and it is the stout, tall, white-barked trunk that is so striking. The bark is tough, durable, impervious to water, and from time immemorial has been used by American Indians for making canoes and miscellaneous utensils and to cover their wigwams in winter. It is the conspicuous tree of the boreal forests of North America, being found across the continent from the Atlantic to the Pacific.

The white-bark birch of north-eastern Asia (B. japonica) is found over an immense area from the higher mountains of western China north-eastward and throughout Japan, northward

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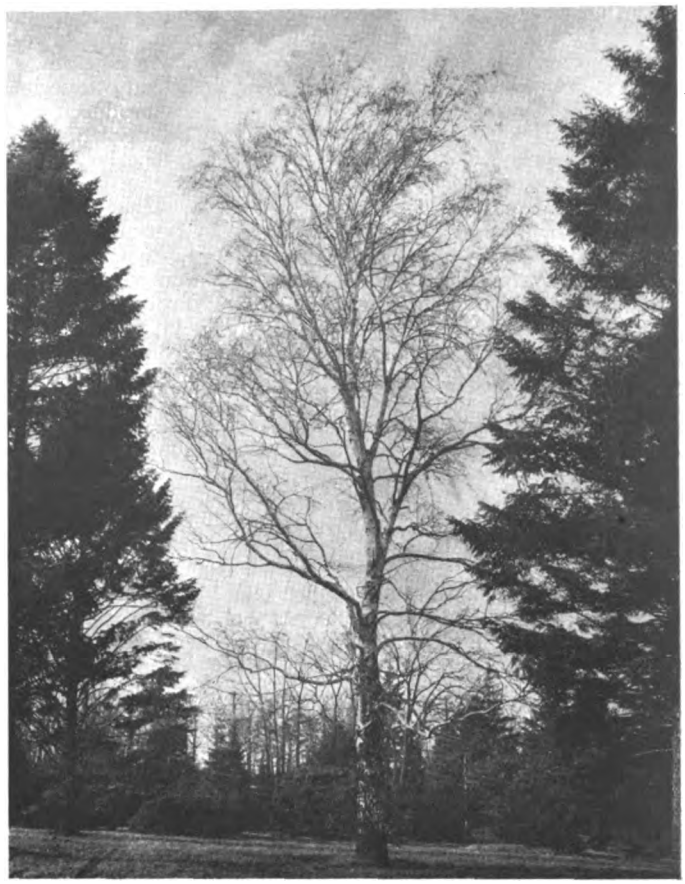
to Kamtschatka. The foliage varies a great deal, and a number of named forms are recognised, but all agree in having a pure white bark easily separating in thin layers. At its best in the forests of northern Japan, this birch approximates in size to the American canoe birch, but the best form is that named szechuanica, from the high mountains of extreme western China, which has thick, bluish green leaves and very polished red-brown branchlets and an open crown of wide-spreading branches. Trees raised from seeds (Nos. 983 and 4088) I collected near Tachien-lu have grown well in Europe and America and proved a decided acquisition.

One of the least known of all birches is the white-barked species of the north-western Himalayas (B. Jacquemontii), native of Kumaon, Kashmir and Afghanistan. It is in cultivation at Kew, and we have small plants growing in the Arnold Arboretum, but beyond the fact that the bark is white and peeling, little is known about this tree.

The most common birch in Japan and one found in great quantity throughout Korea and north-eastern Asia generally is B. Ermanii, which has a greater altitudinal range than any other Oriental species. It also grows to a larger size than any other birch of eastern Asia, with the possible exception of B. grossa, but in the alpine zone of the higher mountains of northern Japan it is reduced to a low, very broad shrub with branches prostrate on the ground. Growing in such a wide area and under such diverse climatic conditions, this species naturally exhibits much variation. The trees differ in habit, the leaves vary greatly in size and in degree of dentation, and considerably in shape also. The bark is greyish, sometimes suffused with red-brown, or it may be white; it is exfoliated in thin sheets, or the sheets may remain on the tree in shaggy masses. The fruit is always erect. Usually the trunk divides a few feet from the ground into several massive stems, and these branch to form a wide-spreading crown; but when the trees grow crowded together in rich woods, the trunk is relatively slender and very tall and the branches are thin and short. During 1914 I paid much attention to this birch in Japan, but I failed to discover any constant character by which any variety or form could be definitely distinguished in the field. Its variability notwithstanding, B. Ermanii is a well marked species. The variety (subcordata) found around Nikko, with its tall trunk clothed with peeling grey-white pink-tinted bark, is the most handsome of the many forms of this birch. In Sir George Holford's arboretum at Westonbirt there is a fine specimen of this birch. (*To be continued.*)



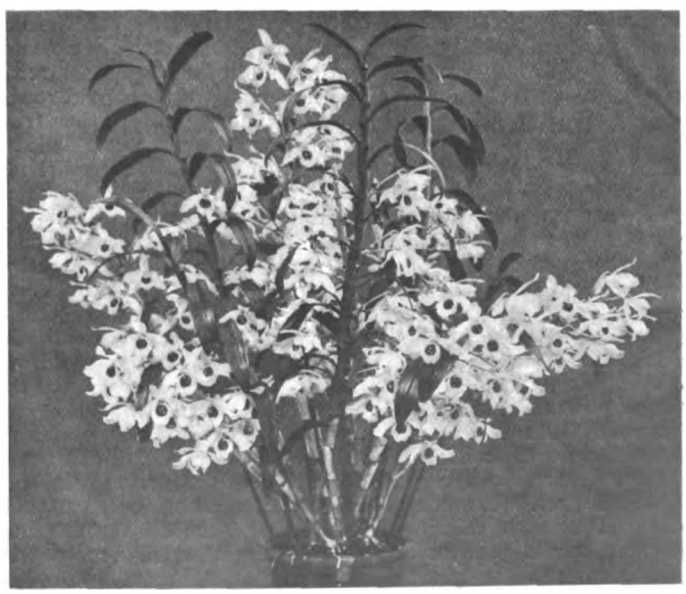
THE BEST OF THE WHITE BIRCHES, B. VERRUCOSA.

DENDROBIUMS OF THE NOBILE SECTION

BY GURNEY WILSON.

EVERY amateur cultivator of orchids has at one time or another seen Dendrobium nobile, for in past years it was imported in tens of thousands, and at a price within the reach of one and all. The comparatively small amount of attention required by this species renders it particularly useful to the amateur, while the freedom with which its flowers are produced during the early part of the year is the reason why florists select it in preference to other species of the genus. If we consider its many hybrids, it will be found that they enjoy a similar degree of popularity, in fact, it may be said that all hybrids of the nobile section respond satisfactorily to quite simple treatment, although it is true that our forefathers grew dendrobiums in very high temperatures, and thereby produced excellent specimens, recent experience has proved that equally good results can be obtained without such intense heat during the growing period in summer. Now that the old notions regarding high temperatures are passing away, dendrobiums are again becoming fashionable. Dendrobiums are especially suitable to an English climate, for they make their new growth during the best of the summer weather, and rest during the dull winter months under comparatively cool treatment. Thus it will readily be seen how adaptable they are to the conditions generally prevailing in an amateur's greenhouse.

Dendrobiums commence their annual activity early in the spring by forming new growth from the base of the bulb made in the previous year. As the season advances, so additional heat and moisture are necessary for the successful development of this young shoot, for in due time it will become an erect stem, or bulb, of one to two feet in height. The summer months are of much importance to the production of robust growth, and every opportunity should be taken of placing the plants in the most suitable atmosphere available. Many fine specimens have been grown in vineries, and in other houses having a temperature which does not usually fall below 60°. With sunshine the temperature will rise considerably, and greatly assist the production of vigorous growth; although 90°



ONE OF THE FINE VARIETIES OF DENDROBIUM NOBILE.

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is often registered, it is by no means necessary that such a high figure should be maintained daily. While fully appreciating sun heat, dendrobiums must be shaded during the greater part of the day, not heavily, but just sufficiently to prevent the leaves from being scorched. For this purpose there is nothing to equal the lath-roller type of blinds, which, while allowing the sun to penetrate the house, do so in a manner that represents the partial shade produced naturally by the forest. Moisture is also of much importance, not only in the compost of fibre and moss, but in the atmosphere. Daily damping down of the house is, therefore, advisable, and on all fine mornings the plants should be lightly sprayed. Care should be taken that water does not remain in the apex of the new growth when a cold night is expected, for damage may occur if the temperature of the house falls to a low point.

About the middle of August the new growths will have completed their season's activity, and from then onwards the temperature and moisture must be gradually lessened, otherwise the plant may be induced to commence a second growth, which places it in a very unsatisfactory condition, for this second growth cannot be completed during the few remaining weeks of fine weather. Ventilation should be freely given during the autumn, and the plants gradually accustomed to full sunshine, by which means the bulbs will be properly ripened and thus be able to reward the cultivator with a fine display of bloom when the days begin to lengthen. Many a fine show of flowers has been seen when the plants have not been in a higher winter temperature than about 50°. During the winter, only sufficient water should be given to prevent the bulbs from shrivelling. The old practice of drying them so severely that they shrivel is detrimental. The true secret of success lies in the production of healthy growth being made during the summertime and judicious ripening of the same as already described. Flowers will then be produced in a quantity unsurpassed by any other orchid.

The large number of flowers produced on the bulbs reduces their vitality, and on that account it is not advisable to continue cultivating the same plant for more than a few years. Some cultivators consider five years as long enough. Probably no other orchid is more quickly and easily propagated than the dendrobium, and the method is full of interest. All that is necessary is to cut off a portion of the stem, or bulb, a few inches in length, and lay it horizontally on some damp sphagnum moss in a warm and moist atmosphere. This is best done in the springtime. After a few weeks, the buds which do not develop into flowers will produce young growths, and later on roots will make their appearance, when the little plants thus obtained should be placed in small pots and grown on in similar style to the parents.

Another method consists of cutting up one of the stems into short lengths of one or two inches and inserting them round the edge of a pot or pan. When cut into such short lengths there is only a small amount of nutriment available for supporting each new growth until such time as it forms its own root system, consequently this method is best practised when a propagating case or house is available, with a high temperature and much atmospheric moisture. It has been previously stated that in order to produce flowers the stems must be sufficiently ripened during the autumn months. But let us suppose that the owner has a particular variety of which he desires to increase the stock as rapidly as possible. All that is necessary is to refrain from ripening the stems, which is effected by keeping the plant in a shady and moist position, and the buds are then available for the production of young plants instead. The cultivator thus has the power of deciding whether the buds on the stems are to produce flowers or young growths. It is as well to point out that buds which have yielded flowers cannot be used afterwards for producing young growths.

No matter whether the plant is a year old or a specimen of large size, dendrobiums very much dislike being surrounded by an unnecessary amount of compost. It is really surprising how well they succeed when placed in pots which at first sight appear much too small. A compost consisting of about equal parts of fibre and sphagnum moss is recommended for the smaller plants, and for the largest the quantity of moss should be reduced. Good peat is now difficult to obtain, and its place is taken by osmunda fibre, polypodium fibre and Welsh fibre. During the growing season, the plants delight in abundant supplies of water, which should pass quickly through the compost. Any water-logged condition will very soon bring about disastrous results. This is one of the reasons why a mass of wet compost is so distasteful to them.

In conclusion, mention may be made of the following hybrids of D. nobile for all of them are easily cultivated and flower very freely when given reasonable care and attention. D. Ainsworthii (aureum × nobile), D. Cybele (Findlayanum × nobile), D. melanodiscus (Ainsworthii × Findlayanum), D. Euryalus (Ainsworthii × nobile), D. Lady Colman (Findlayanum × The Gem), and D. variabilis (nobile × Thwaitesiæ). All the foregoing bear flowers of varying rose and purple tints, but in D. Thwaitesiæ a hybrid can be obtained which yields flowers of a golden yellow colour, and which is acknowledged to be one of the most distinct and beautiful kinds yet raised.

A WHITE BORDER

WHETHER the white border be narrow or wide, whether it frames a pocket-handkerchief lawn with one tiny bed or a bird-bath in the middle, or a broad stretch of turf wherein a dozen or more flowering trees can find room, or even if it is not a border at all—which sounds rather Irish—but just an odd corner of the garden, it has always a delicate charm of its own and is a very pleasant possession. If, however, the white flowers are to be seen at their best, they must have a dark background, and the ideal one is a tall hedge of yew, holly or box, although shift may be made with euonymus (provided the district suits it), or even the greedy but rather unjustly abused privet. A wall of old mellowed brick is a tolerably satisfactory background, but one of stone, unless it is the red stone of the west country, is much less suitable. Immediately in front of the hedge or wall may be grown, on fir poles, Clematis montana, C. Flammula and some of the larger-flowered kinds; roses, such as White Dorothy, Pemberton's White Rambler, and the Ayrshire Félicité Perpetué, an old rose which has replaced a still older (and better) one, Seven Sisters; Lathyrus latifolius White Pearl, and Jasminum officinale; white-flowering shrubs, among them Spiræa arguta, Choisya ternata, Cistus ladaniferus, Diervilla florida alba (better known perhaps as White Weigela), and some of the Veronicas may be planted between the climbers, but unless the border is very wide it will be wiser on the whole to fill the spaces with bold groups of white foxgloves (these can be trusted to sow themselves and will keep fairly true if all pink "rogues" are pulled up), and that splendid iris, ochroleuca (unless its yellow blotches are considered to put it out of court), these being brought well forward and alternated with such taller flowering things as white tree lupins, peonies (double and single, Chinese and European) Boltonia decurrens, Chrysanthemum uliginosum and some of the taller Michaelmas daisies. That delightful little double cherry, Prunus japonica alba fl. pl. may also find a place in this part of the border or a little farther forward.

In the next section may be planted, in clumps of a dozen or more bulbs, Lilium candidum and Galtonia candicans, one to bloom in July and the other in September, combined with Phlox decussata Europa and F. A. Buchner, Anemone japonica Whirlwind, herbaceous lupins, Asters ericoides and vinimeus and flag irises, mostly of the plicata section, Campanula persicifolia and C. lactiflora alba, although in some soils the latter will grow so tall as to require a place nearer the back of the border. Clumps of the mist-like Gypsophila paniculata and the old white-striped ribbon grass, familiarly known as gardener's garters, may be introduced here and there to make a variety, for where there is no diversity of colour it is particularly necessary to get as much contrast as possible in the habit of growth and flowering of the plants used. A few bush roses of the dwarf polyantha class may be added to the list of "admissibles"; White Pet is one of the best of these for such a situation, but

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I am sorry to say its name does not appear in recent catalogues. Katherine Zeimet and Snow White may replace it.

To fill the remaining space in the border there is a whole host of plants from which to choose. Particularly suitable are Achillea Ptarmica, The Pearl or Perry's White, Aquilegia Munstead Giant, Pentstemon Newbury Gem, Malva moschata alba, the dwarfer varieties of Chrysanthemum maximum, and pyrethrums double and single. These may be relieved by patches of Camassia Leichtlini, the tall spikes of which are too seldom seen in gardens, and the two anthericums, especially the starry blossomed A. Liliago—St. Bernard's lily.

How the border is edged depends chiefly on personal taste. For a permanent edging nothing is better than the old white pink, now rarely seen, alas! save in cottage gardens, whose neat, stiff-stemmed and most fragrant flowers are far superior for such a purpose, to the modern varieties with their ugly burst calyxes and limp stalks. Iberis sempervirens is another good edging plant, but it must be renewed every few years, as the old plants are apt to grow too big and if cut hard back they bloom badly. Arabis albida fl. pl. can be used as a permanent edging or young plants may be put in every autumn for spring-flowering and replaced by bedding violas in June. The annual Alyssum minimum makes a pretty and very inexpensive summer bordering, but it should not be sown *in situ* according to the general custom, but in boxes, pricked out into others and planted out singly as sturdy little plants. If the border can be slightly raised it may have what is popularly known as a "rockery edging" over the rough stones of which can be grown Viola cornuta alba, Dryas octopetala, dwarf campanulas—especially C. pusilla—those of the mossy saxifrages that have white flowers, Corydalis capnoides, Armeria maritima alba, Phlox subulata and P. divaricata, Dianthus deltoides and many other things of similar habit.

Bulbs other than those already mentioned may be introduced into our border at discretion. There are plenty of white early tulips, but very few in the May-flowering class beyond Cygnet, a fairly pure white with black anthers. Their limitations, however, are atoned for by the number of white narcissi to be found in the Leedsii section, notably Mrs. Langtry and White Lady and, of course, the old Pheasant's Eye. Immediately behind the edging small bulbs should be planted freely, including the old-fashioned "five o'clock ladies"—Ornithogalum umbellatum—white snakes'-head fritillary, the white varieties of Scilla sibirica and Muscari botryoides (slugs are very partial to the latter) and Sanguinaria canadensis, that dainty thing whose flowering season is all too short.

BOLD GROUPS OF CHRYSANTHEMUM MAXIMUM SHOULD BE INTRODUCED THROUGHOUT THE BORDER

BORDER CAMPANULAS ARE ALWAYS USEFUL.

PLANTS FOR A WHITE BORDER.

Name.	*Height.*	*Flowering Season.*
Achillea Ptarmica The Pearl	2½ft.	July-August.
Anemone japonica alba	3-4ft.	September-October.
Anthericum Liliago	2ft.	June-July.
Anthemis tinctoria alba	2-2½ft.	All Summer.
Aquilegia Munstead Giant	2ft.	June.
Aster N. B. Sam Banham	4ft.	September.
,, ,, White Climax	5ft.	September-October.
,, ,, Snowball	4ft.	September-October.
,, ericoides	3ft.	October.
,, vimineus	3-4ft.	October.
Boltonia decurrens	5ft.	September-October.
Campanula persicifolia alba	2ft.	June-July.
,, alliariæfolia	2½ft.	August.
,, lactiflora alba	4ft.	July-August.
Camassia Leichtlini	2-2½ft.	May-June.
Chrysanthemum maximum	3½-4ft.	July-August.
,, uliginosum	5ft.	September-October
Clematis montana	Climber	April-May.
,, Flammula	Climber	September.
Digitalis alba (biennial)	4-5ft.	June-July.
Galtonia candicans	3-4ft.	August-September.
Gypsophila paniculata	3ft.	July-September.
Iris ochroleuca	4-5ft.	July.
,, sibirica alba	2-2½ft.	May-June.
,, plicata section	2½-3ft.	June.
Jasminum officinale	Climber	June-July.
Lathyrus latifolius White Pearl	Climber	July-August.
Lilium candidum	4ft.	July.
Lupinus arboreus Snow Queen	4-5ft.	July.
,, polyphyllus albus	3ft.	June.
Malva moschata alba	2ft.	June-August.
Peony Single Chinese, The Bride	3-4ft.	June.
,, double Chinese, Snowball	4ft.	June.
,, Old Double White (European)	3-4ft.	May-June.
Pentstemon White Newbury Gem	2ft.	July-September.
Phlox decussata Europa	3ft.	August-September.
,, ,, F. A. Buchner	3ft.	August-September.
Pyrethrums, double and single	2-3ft.	June-July.
Sidalcea candida	3ft.	July.
Spiræa filipendula fl. pl.	2-2½ft.	June.

ANNUALS FOR THE WHITE BORDER.

Annuals may be introduced for summer flowering where there may be any vacant places, but a too lavish use of them is not advisable. The following may be tried:

Aster sinensis, white; A. s. Sutton's Giant Ray, white; Clarkia Sutton's Snowball; jacobæa, white; Lavatera alba splendens (Sutton); Nicotiana affinis; Sweet Sultan, white; ten week stocks, white.

R. E. HEAD.

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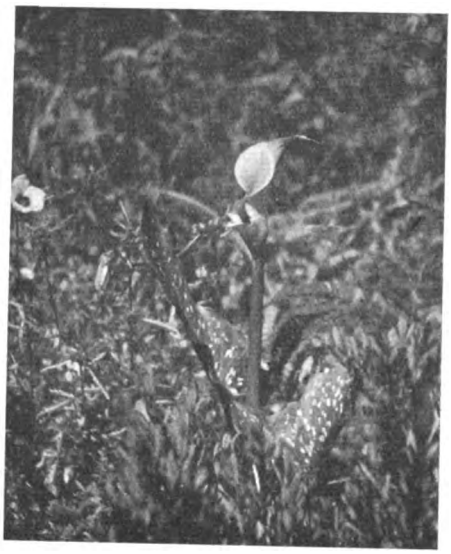
NOTES OF THE WEEK

RICHARDIA MELANOLEUCA.

THIS plant was sent to me from Natal three years ago. It was planted out in a south border and has come up every year. This year it flowered for the first time, when the accompanying photograph was taken. A second flower has also been thrown up. It would be interesting to know if any other readers of THE GARDEN have this plant flowering in their garden.—E. W. W. BLATHWAYT, *Porlock, Somerset.*



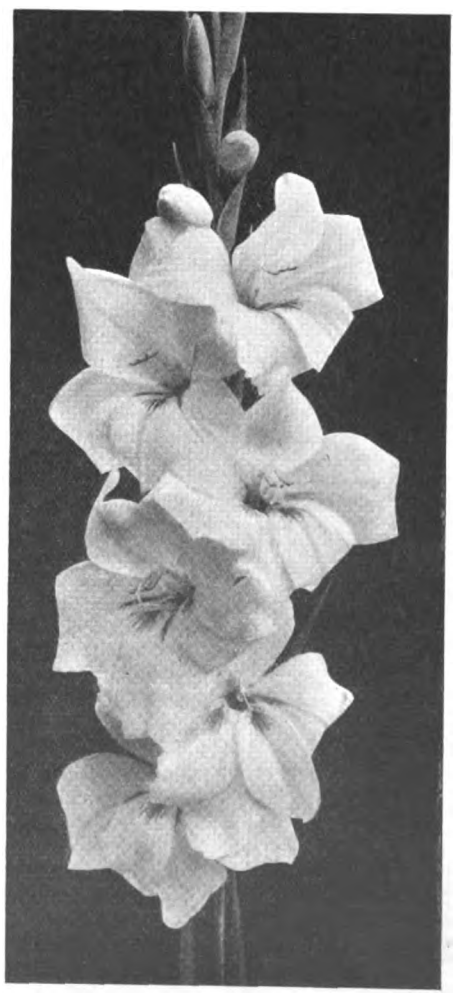
RICHARDIA MELANOLEUCA FROM NATAL.

ERODIUM HYBRIDUM.

A NOBLE plant in its way, but less appreciated because of the colour of its flowers, is the erodium called E. hybridum, which is understood to be derived from E. Manescavi and E. daucoides. It looks very well on large rockwork or in the border with its handsome, finely divided, fern-like leaves of a good green, which last during winter and decay in early spring. The flowers are of a vivid magenta borne in heads which are as large as those of a geranium. The colour is not a popular one, but the plant is really showy and striking, and when planted among or near other plants with plenty of greenery, is highly appreciated. E. hybridum is quite hardy and can be increased by division, but a large plant is much finer than a small one. For years I grew this erodium on a high part of a rock garden fully exposed, and it attracted a good deal of notice from visitors to my garden. I do not think that it seeds, as I have never seen any on my plant and do not find them offered in any trade catalogue. It should be planted in spring.—S. A.

GLADIOLI THAT HAVE PROVED THEMSELVES.

THE gladiolus year may be said to close in the month of November. The bulbs have been lifted and, with luck, should now be in their winter quarters—a dry, not too dry, airy store, secure from the reach of frost. The long winter evenings give us an opportunity to look over our notes of successes and disappointments. The new catalogues begin to descend upon us—some fully illustrated, and with such titles as "The World's Best," "Those Better Glads." "Pick the Best of the Best," and other catch phrases. Then we have the more modest titles, "The Cult of the Gladiolus," "The Modern Gladiolus," and the catalogue (which lies before me) with the simple words "Good Glads" on the outside cover, and inside I read: "My aim is not to grow the new highest-priced novelties, but such kinds as the average person wants and can afford." Turning to the first page of the catalogue proper, my eye catches the names of Alice Tiplady, Black Pansy, Catherina and Europa. Cameo attracts my attention, but I find that this is not the large-flowered variety of five years ago, but a dainty slightly ruffled prim, pink on cream ground with deeper shade on back of petals. The lower petals are yellow shading to cream white and tipped with delicate feathers of red. This one was pot grown. Chameleon, grown both in pots and in the open ground, gave satisfaction, reminding one of delicate changeable silk with soft melting shades of lilac purple, violet and orange. Elizabeth Tabor, a fine flower at any time, but with its unusual earliness (always one of the very first with the writer), it is doubly appreciated. Next, Giant Nymph, gigantic in both growth and flowers, and we once more picture the early blooms of light rose pink with creamy yellow throat. Golden Measure, Jack London and Jenny Lind are, perhaps, too well known to need further description; but Jasper, with its distinct feather of velvety amaranth purple spread over light zones of clear yellow, and Lena Graetz, a good white, are noted as two to be put on the list for next year. Both bloomed well in pots and the open ground. Under the letter "M" we are once more brought face to face with those popular favourites, Mary Pickford, Mona Lisa, Mrs. F. Peters, Mrs. H. E. Bothin and Muriel. Odin calls to us from that outstanding patch of colour last summer that he too must not be overlooked. Elora should have been mentioned as growing in public favour. It is a Burbank production, the colour is creamy white with cream spot in throat on three lower petals which are overlaid with featherings of American Beauty pink.



A HANDSOME SPIKE OF GLADIOLUS ELORA

Purple Glory, Romance and Rose Ash come next in view, with the new prim. Revue, a yellow, shaded to delicate pink at tips of petals, insisting not to be overlooked. This last was planted on June 8th and bloomed September 10th, and is sure to attract attention when better known.

Scarlet Wonder, with its mammoth pure deep scarlet flowers, claims a space in the mixed border; while Sheila and Sweet Lavender remind us that they are among the first to bloom and furnish us with bowls of delight.

Indeed, they are all "Good Glads."—G. C.

ANTHOLYZA PANICULATA.

OF late autumn flowering hardy bulbs we have comparatively few of greater effect than the antholyzas from South Africa, bold-looking plants in both leaf and flower. Of the few in cultivation, Antholyza paniculata is the best, as it is hardier than the others, is as fine in the garden, and is not difficult to procure from ordinary trade sources in this country. Like most other flowers, it varies in height, according to the nature of the soil, and is generally about 3ft. high in medium loam. It is really handsome, with long, erect, bold, plaited leaves and masses of scarlet and yellow flowers, much after the style of the montbretias, to which it is closely allied. It is more effective in the garden than they, however. If planted, as soon as received, in loamy soil—well drained and, if the compost is poor, with some thoroughly decayed animal manure or some bonemeal added—at a depth of about four to six inches, and covered for the first winter with some dry litter or a mound of ashes, it will establish itself and increase from year to year until it forms a bold clump of much beauty.

The variety A. p. major is taller and bolder, but it is rather later of flowering, and in cold localities is often caught by frosts before it can bloom. Its flowers, also, are of poorer colour, and its main value for all but mild places lies in its noble leaves. Some cut down the old foliage every autumn and cover the surface of the soil with litter, but the old leaves afford a valuable protection if allowed to remain until the new leaves begin to appear, when they can be removed.—S. ARNOTT.

A NEW USE FOR ELYMUS ARENARIUS.

"NO, you don't," says Elymus arenarius to the encroaching sea. "No, you don't," it says to inquisitive see-ers in a flat wind-swept garden close to the shore at Blundellsands, near Liverpool.

This is how it came about. A drive of some 40yds. to 50yds. in length leads from the gate to the front door. All along one side of this drive are the tennis courts. The owner's problem was, what to do to secure their privacy? Casual visitors are all very well in their way, but one does not want them to see all that is going on. A wonderful inspiration came to him. Was it a leaf from the sand-hill's book? or was it a sort of sub-conscious application of the Doctrine of Signatures? What could restrain the sea surely could also restrain see-ers!

Anyhow, the idea fructified, and a big bank of sand was made all along one side of the drive. It was ever so wide at the bottom and about 8ft. or 9ft. high, with

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an equal slope on either side, towards the drive and the courts. This was planted all over with Elymus arenarius. I saw it in 1922 and again this year. The result is fine. It looks well and it does its work well. The gardener tells me that practically the only attention it gets is that the whole of the grass is cut down to within about 6ins. from the ground at the end of December or in early January every year.

I can imagine nothing that would have looked so well, or have been so permanent for the purpose for which it was needed, as this wholly artificial grass-covered bank.

The idea may be useful to some of our readers. I do not know if this grass will flourish away from the sea. If it does, well and good. If it does not, would Elymus glaucus do for a substitute, or would it be too tall and rampant?

Of course, one cannot dump such a bank anywhere. Environment *must* be considered. —JOSEPH JACOB.

EUONYMUS BUNGEANUS.

I SHOULD like to bring to notice the garden value of Euonymus Bungeanus, a Chinese member of this widespread genus, which has been in cultivation in this country since 1883, if not earlier, and is worthy of much more attention than is paid it at present. It was named by Maximowicz in the nineteenth century after Dr. Bunge, the well known botanist, but it is believed to have been first discovered by Cunningham, a Scotchman in the East India Service, about the year 1705, and was certainly found by some members of Lord Macartney's mission to China in 1793. Apart from any historical interest, its grace and creamy colour in the autumn give it a singular charm. It is certainly not so showy as some forms of E. alatus and E. europæus with their violent variations of colour, but a satisfying, if gentle, cream makes a pleasant contrast to the more brilliant shades. This species grows into a large shrub or small tree, and is more graceful in form and outline than many of the commoner species. The leaves are long and wedge-shaped at the base, and taper to a slender point. At this time of year they hang in a most graceful fashion perpendicularly from the branches, and the delicate shades taken by the leaves from creamy white to a pale fawn catch every glint of light. It rarely fruits in this country but the beauty of its foliage more than makes up for lack of fruit. It is perfectly hardy and will grow in any good loam.—E. C.

A GOOD CLUMP OF CHIONODOXA GIGANTEA.

CHIONODOXA GIGANTEA.

IN the notes in THE GARDEN on bulbs for present planting, I saw no mention of Chionodoxa gigantea alba. I imagine that this bulb must be rare, as I find no mention of it in the catalogues which I have consulted.

To my mind, its blooms are far more beautiful than those of C. Luciliæ alba. A few years ago I bought one bulb, and now I have a good patch of it, of which I send a photograph. When in bloom I consider it the most beautiful flower in the rock garden. — NORMAN RUSHWORTH, *Walton-on-Thames*.

THE UNEXPECTED IN GARDENING.

IT is the gardener's privilege always to be prepared for the unexpected. Nine-tenths of his work is more or less experimental, and even he who exercises his craft in a comparatively small way is constantly being confronted with something new—something, it may be, that is a direct contradiction to general experience. Take the following instance. In the spring several old clumps of Dierama pulcherrimum in a neighbour's garden were lifted, the object being to divide and replant them. Wise people wagged their heads. The project would certainly not succeed, for these plants when fully grown are by common consent notoriously bad movers. To make matters worse, the clumps were thrown loosely into a box and there they lay for several weeks, fully exposed to the weather. However, the gardener, finding them still alive, eventually took pity on them. He broke them up and planted them. They made an immediate response, and the last time I saw them, about a month ago, they were carrying promising sheaves of green blades.

Genista monspessulanus I have grown for many years and, though I was under the impression that I knew all there was to know about the culture of this shrub in a general way, it held a surprise up its sleeve. It happened that a group of considerable size had become so leggy that preparations were made for replanting with seedling stock, as is usual with most things of this sort. The bushes (8ft. high) were therefore sawn off an inch or so above the soil, the result of this being that every one of the stumps put up such a strong array of shoots that these will soon refurnish the patch and promise to make better bushes than the seedlings. Many brooms will break from the old base after cutting down, but only in a feeble, half-hearted sort of way. The stumps alluded to have shot up with the vigour of gorse.

Here is another incident which some may be able to explain. The plants and shrubs of a narrow westerly border are so menaced by a high tree-clad bank behind them that all the taller kinds naturally lean out to the light. But there is one notable exception. Some plants of Genista fragrans put into this border were given the additional shelter of a large laurustinus on the wall above them. But, in spite of the fact that the latter has grown so much that it now forms a dense canopy over the genistas, these shrubs are as erect as ever they were. Instead of leaning away from the shade, as all the other things are doing, they have actually grown right into it, thrusting their leaders into the branches of the evergreen above.

The relative hardiness of plants is a subject upon which few gardeners can afford to be dogmatic, for, within reasonable limits, there are subjects which, if they fail in one climate, may do quite well in another part of the county. Fremontia californica, for example, has withstood, without any injury, frosts which have been severe enough to kill subjects usually considered much hardier, the exposure being equal in each case. Yet many who might grow that singularly beautiful shrub are deterred from trying to on account of the warnings uttered as to its tenderness. Then there is Raoulia australis, which has laughed at 26 degrees of frost and carried on cheerfully under wintry conditions that have turned the prostrate thymes brown.—N. WALES.

A BEAUTIFUL EUONYMUS, E. BUNGEANUS

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CARPETING THE SPRING BULB BEDS

WE particularly dislike those mounds of bare soil—beds in which bulbs are planted—that inevitably present the appearance of graves—graves of departed summer. Besides, they are so unnecessary. Ten minutes perusal of any good plant list will convince you of this, for Nature has been lavish in her provision of delightful plants wherewith to "carpet" the bare ground during the winter days, plants that immeasurably enhance the beauty and charm of the spring garden. A bed of Darwin tulips may be good enough to stand alone, but its attraction is immensely increased by underplanting with alpine phloxes or forget-me-nots that flower at the same time. Here are almost infinite possibilities in colour blending and colour contrast; while, by pressing the aubrietias, too, into the service, the scope is widened to embrace a far broader range of tulip brilliance.

Imagine, for instance, the effect of a bed of Tulip Bleu Aimable carpeted by Aubrietia purpurea. Or Tulip Farncombe Sanders, in almost geranium scarlet, over a groundwork of the snowy white Phlox subulata Little Dot. Tulip Clara Butt is one of the cheaper varieties that consort admirably with Phlox rosea grandiflora. There is a peculiar aptness in the association of Tulip Euterpe in soft mauve with its electric blue centre and Phlox subulata Seraph, the white flowers of which also display a blue centre.

There is a curious old-world primness about the Dutch hyacinth that almost demands the company of the equally old-fashioned double daisy that begins to flower so early and lasts right up to the day when the beds are cleared for their summer occupants. In this connection, do not overlook the merits of the varieties Dresden China and Hen and Chickens. The former is simply ideal for use with small bulbs in small beds, and gives a complete surfacing of miniature quilled flowers in soft pink, while the latter has all the charm of the country cottage garden, where, by the way, it is most often seen. The flowers in this case, too, are pink and very double, each one being surrounded by "auxiliaries" in the form of smaller blooms clustering round the central one, like chickens round their mother. Strong red, crimson and scarlet flowers may be thrown into most striking prominence by underplanting with Cerastium tomentosum, which provides a neutral grey silver carpet, the effect of which in a big bed is most attractive.

The fresh green mossiness of the saxifrages serves us nobly in a variety of ways and, with the splendid forms now in commerce, not only provides a vivid green carpet all through the winter, but so profuse is the flowering that this is entirely buried beneath a welter of red or white flowers when the bulbs are at the zenith of their perfection. Where tall-growing May-flowering tulips are a feature, do not overlook the marvellous possibilities of the polyanthus, especially where these are segregated into separate colours—white, yellow, gold and red. Here one may select, combine and associate to almost any extent and, by cunning planting, almost complete satisfaction may be ensured. As a simple groundwork, that sturdy old favourite Mrs. Sinkins pink is difficult to excel and, if you have never experimented thus, just try planting beneath a vivid orange tulip, such as Walter T. Ware, a variety that deserves special commendation for its lasting qualities.

Here is a little trick that enormously enhances the apparent silveriness of the pink's foliage and throws up the brilliance of the orange tulip. Plant a small proportion of the "black" tulip—The Sultan—among the orange ones. This must not be overdone or the effect is spotty and crude, but a few form that slight "leaven" that makes all the difference to the mass. With a large space to fill, no cheaper way can be found than a sparse planting—say 15ins. apart—of cottage or Darwin tulips, filling the groundwork with Arabis albida fl. pl.

So far we have only considered association of plants of a spreading nature with bulbs, but particularly attractive beds may be planned by interplanting bulbs with bulbs. Thus narcissi may be grounded with muscari, the intense gentian blue of the latter serving as a splendid foil to the delicate colouring of the best forms of narcissi. Anemones, too, are invaluable and very economical, because with these we obtain beautiful spreading foliage as well as flowers. Justifiably popular for its wealth of double golden blooms, so familiar as Gold Dust, Alyssum saxatile fl. pl. gives us glaucous grey foliage all through the winter, which is completely hidden under gold in April and May, so that it is suited for use with a wide variety of bulbs.

A very beautiful woodland bed, suitable for a half shady position, can be achieved by the use of two simple and familiar flowers. Use the common English bluebell—Scilla nutans—at 9ins. apart all over the bed and, between each bulb plant one root of Anemone nemorosa—the familiar wild wood anemone. If you want to translate the same idea into garden varieties, choose Scilla campanulata alba with its spikes of pure white open-belled flowers and substitute Anemone apennina as a groundwork. The latter covers the earth with beautiful green leaves and masses of starry bright blue flowers.

H. W. CANNING-WRIGHT.

A PLEASANT ASSOCIATION OF TALL DARWIN TULIPS AND FORGET-ME-NOTS.

CORRESPONDENCE

MYRICA ASPLENIFOLIA AND LONICERA CANADENSIS.

SIR,—I was interested at seeing a very good snapshot of a small plant of Myrica asplenifolia illustrating "G. C. T.'s" interesting note on shrubs in Argyllshire, and also in what was said regarding its presence as evidence of the mildness of the west coast of Scotland. Out here (Canada), it is an absolute weed, quite hardy, and runs for miles along the driest railway banks, where, in company with Lonicera canadensis it forms a charming effect, especially in early autumn when the latter has turned its rusty bronze hue.

This is again one of those proofs that snow is the most wonderful blanket, as well as fertiliser, for native plants. Cassell's dictionary gave two of the Canadian orchids—Calopogon pulchellum—as being "nearly hardy, but . . . it is better to give it greenhouse treatment," whereas I know of it literally covering a rotted tree stem that lies out in the water of a lake in the Gatineau country to the north of Ottawa, and Pogonia ophioglossoides, as needing a temperature of 50 degrees, though that is another plant which thrives in the wet Canadian meadows and swamps! It is most curious to see how hardy some of these so-called tenderlings can be in their native land. And hardy the poor things need to be, with a temperature going down to 40 degrees below zero at times.—EVELYN BYNG OF VIMY.

GARDEN RUBBISH.

SIR,—It came as no surprise to find my views regarding the dangers that lurk in garden rubbish are challenged. Your correspondent T. E. Tomalin considers I have "greatly exaggerated the dangers likely to arise therefrom." Let me assure him that nothing will please me better than to discover that he is right, and myself wrong: for, after all, it is a matter of very small importance that I should be bowled over as compared with

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the gravity of the danger, if it is as great as I believe it to be.

My anxiety is not to prove that everything I write is infallibly correct, but, by the expression of my views and throwing them open to discussion and criticism, I venture to hope we may make some progress toward arrival at the truth.

Permit me further to explain conclusions at which I have arrived.

We have been taught by scientists that many of our most destructive fungoid diseases ripen their pustules of spores on the decaying foliage and growth which the fungus helped to destroy, and that these pustules frequently pass their dormant period either on the rotting vegetable matter or in the soil beneath, eventually distributing their spores for a renewed attack upon their favourite hosts. Eggs of aphides and various other insect pests are likewise deposited on twigs, leaves and stems of plants and weeds, and many pupæ of leaf-miners and other foes hibernate in the garbage of the plants they have attacked. Every plant pathologist who lectures or writes constantly reiterates the importance of burning the diseased plants or parts of plants which have to be grubbed up or pruned away, and in a good many cases that is admitted to be the only known method of stamping out the particular scourge under consideration.

Despite all this, it is all too commonly the case that mildewed foliage and prunings, maggot-infested celery tops and heaps of other infested rubbish are either dug directly into the soil or are conveyed to the rubbish heap to make humus. Potato haulm, full of disease, and even rotten tubers are carelessly left to perpetuate their enemies; and dropped fruit, as well as small prunings, occupy some place in the garden long after they should be destroyed; and vast quantities of weeds are left to rot which are smothered in pests of varied description. Such methods cannot be hygienic.

Your correspondent mentions that he has reduced the pests that worried his plants by improved methods of control; it follows, naturally, that his garden refuse is the cleaner, and therefore less dangerous, and I have not said a word against conversion of clean refuse into humus. My opinion, however, is that much of the complaint regarding mediocre success of spraying, etc., is traceable to the carelessness that is prevalent in dealing with diseased rubbish. The value of humus has been so persistently emphasised that the opinion has become widespread that the thing that matters most is to make all the humus possible, using anything and everything for the purpose. The truth is, a majority of soils possess humus enough and to spare, and many garden soils are seriously overcharged with humus. At any rate, clean humus must be better than diseased.

In so far as leaf-mould is concerned, I readily confess to considering it a grossly overrated commodity, and I know I am not alone in attributing many troubles of pot-grown plants and seedlings to leaf-mould. Some of the largest and most successful commercial growers long since dispensed with leaf-mould for many of their cultures, and the biggest growers of perpetual-flowering carnations forbid the use of leaf-mould in their potting composts.—A. J. MACSELF.

LONICERAS.

SIR,—In Mr. Hadden's splendid article in THE GARDEN for November 14th, page 639, I was sorry to see Lonicera involucrata omitted. The flowers are yellow, but its charm is in its fruiting stage, when the large leaf-like bracts turn the most lovely deep red in the autumn and surround berries of reddish black colour, a vivid contrast to its deep luxuriant foliage. It is a shrub which grows from 5ft. to 6ft. high, and is a native of North America.

Most of the other varieties Mr. Hadden mentions grow in these gardens, but we failed completely with Lonicera Hildebrandtii. Among others growing here are L. utahensis and L. canadensis, the latter in bloom at the present time.—R. MOORE, *Thorpe Hall.*

PLANTS IN EAST ANGLIA.

SIR,—Lady Byng of Vimy will find, I think, that the east coast of England generally suits shrubs and flowers that require sunshine and a dry air, while the west coast suits the shrubs and flowers that love moisture and a more even temperature. If on the east coast you can find an ideally sheltered spot (I know of more than one), the increased power of the sun with its actinic rays that are so soon dulled by damp or smoke compensates for occasional cold spells. It may be quite local I grant, but it can be found, so that while tree ferns cannot adapt themselves to eastern conditions, there are many Chinese and Eastern shrubs that will flower much more freely on the east coast than on the west coast, which is warmer in shade but wanting in sun. There are always puzzles why a plant will thrive in one garden and die in the next, and it is that that adds interest to the keen plant lover. For instance, I saw last summer in the grounds of Mulgrave Castle a very fine Araucaria imbricata planted the same day as that at Kew, but infinitely better grown and healthy. It was one of those scorching hot days of last July, and resin was issuing from every pore of its bark. Horrified at the sight, which seemed to presage death, I asked the gardener about it. "Oh, sir," he said, "it always does this in hot weather, but I never saw it so bad before!" That grand araucaria at Dropmore died from this cause I knew, so judge of my interest when I met an acquaintance who had just been to Patagonia where these araucarias are native. I was told that in summer in that bleak land the thermometer never rises over 60° *in the shade* or falls below 40° in winter, so constant and strong are the sea winds. So in this case it is a hot day that kills the tree, while in many cases it is the want of a good hot sun that makes it drag on a miserable existence. At Scarborough in Yorkshire many very interesting facts may be learnt in the well planned public gardens there, and I recommend them to gardeners.—E. H. WOODALL.

PERENNIAL LOBELIAS.

SIR,—Under the above heading on page 602, Captain H. G. Hawker expresses his satisfaction with the various kinds he grows, all, I believe, raised by us. Particularly was I pleased to see he justly values the variety Mrs. Humbert. This, in normal circumstances, is a very beautiful plant, dwarf and bushy, covered with pretty pink flowers—which, if individually small, are so profuse as to make the plants literally pink bushes—as many as fifty branchlets radiating from one strong crown being frequently seen.

Captain Hawker deplores the loss of richly coloured foliage as in the more tender species. *A propos*, I should like to say that the origin of this race is a fusion of the hardier North American species, all having green foliage. My father, Mr. B. Ladhams, some thirty years ago conceived the idea of a perfectly hardy race, but could find no large-flowering or bronze-foliaged species which answered his requirements. He therefore set himself to evolve at least the former. It was a long business, as in all the first crosses—indeed, for many generations—the resultant seedlings gave nothing but dull washy colours. However, the best of these were selected again and again until a break occurred, giving really promising colours. This is the jumping off place of the present hardy and brilliant coloured varieties which I am handling under my father's watchful eye now.

I may add that in reference to the Rev. Jacob's appreciation of these plants in the issue of October 3rd, Mr. B. Ladhams has had recourse to no outside assistance in this work of crossing and selection.

Returning to the point about coloured foliage, it so happens that this year's batch of selected seedlings contains two or three quite richly coloured, but retaining the characteristic habit of the original crosses. The difference in the form of the flowers in this series and those of cardinalis varieties is quite distinctly marked, and one accustomed to handle both can at a glance pick out the hardy race from the tender one. A sport from Shirley Beauty has now developed quite a deep beetroot-coloured foliage, so we seem to be on the way to rich foliage as well as hardiness—the all-important feature to retain. Of the purples, Delight and Purple King are magnificent pieces of colour when well grown.

A propos of Captain Hawker's remarks as to division, we always get the best results from spring-divided crowns planted fairly thickly (say 9ins. apart) in rich damp soil.—ERNEST A. LADHAMS.

BOX EDGING.

SIR,—I fully sympathise with all "Claremont" has to say (page 642), regarding the labour involved in the upkeep of box edging and the ruinous effect it has upon the soil intended for any plants or shrubs within reach of its hungry mat of roots. The trouble of digging up and replanting, this very soon after the edging has begun to look fine and shapely, as well as the clipping entailed, are formidable tasks when labour has to be considered. But there are other features of box edging which are, to my mind, not less objectionable. Snails love box edging and every variety of slug seems to make its shelter their headquarters. Then there is the odour of box. This may not be unpleasant in itself. Indeed, it is rather refreshing, though suggestive of the venom which lurks in the green blood of all the spurges. But on any warm summer day the fragrance of any flowers in the immediate neighbourhood of box is overwhelmed by the latter's characteristic smell. I have been in many a good rose garden when at the height of their summer beauty, only to find the perfume of the roses entirely subjugated by that of the box which surrounded each of the beds. Box edging may be practically an essential in the making of certain styles of old-world gardens, which is good and well. But where it is not an essential it seems to me that there is very little that can be said in its favour.—A. T. J.

HELENIUMS.

SIR,—In addition to the several good varieties given by the correspondent in Notes of the Week on page 657, there is at least one other sort most worthy of mention, namely, Helenium pumilum. We grow this variety somewhat largely here, using it in summer bedding colour arrangements with other shades of yellow and apricot tones. I do not hesitate to designate it one of the best, if not *the* best of the sneezeworts. In height it averages 18ins., not more. When in flower H. pumilum is one of the most showy plants in the garden and one of the freest blooming, too. The colour is a clear yellow self, perhaps one might call the shade a rich lemon. Continuous flowering is much aided by the removal of passing flowers and, should the season prove very dry, a timely watering or two may be necessary to this end—on light soils, anyway. The late summer rains of the past season suited our subject perfectly, as could be judged by the bright sight of blooms in early October.—C. T., *Ampthill Park.*

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PLANT RAISING AND ROOT DISTURBANCE.

SIR,—The Editorial comment in THE GARDEN (November 7th, page 621), on this important question is worthy of the best thought. Every young man or youth who has chosen as his life's vocation the craftsmanship of gardening should take every opportunity of making himself as fully acquainted with every source of information he can get on such a vital part of a plant's anatomy as the roots. To know the A B C of root-action in all its ramifications, from the confined pot space of any given plant to the larger expanse of all shrubs and trees, is to be in possession of an invaluable asset of horticultural knowledge. In the whole realm of the science of horticulture, there is no aspect of culture which has so much to do with either success or failure as a right or wrong conception of what part the roots of all plants have to do with one or the other. There can be no healthy functioning of stem, leaf, flower or fruit if there is inefficient root action. Therefore, the ventilation of such a subject gives most valuable assistance to every craftsman in the art of culture. As a past teacher of Council gardening classes, one was confronted with persistent questionings, one of which was how best so to raise plants that, when ready to plant into their growing quarters, they would go ahead without a check through disturbance. Many methods of doing this were taught, but none was so satisfactory as the following. I made a box 18ins. by 12ins. by 3ins. deep, then cut a turf just sufficient in size to drop in grass side down, and a little thicker than the depth, so as to allow for paring down to the side level of the box. This done, I cut the turf into six lengths 2ins. wide and then crosswise nine times, making a clean cut through, so that each of the fifty-four 2in. squares would separately lift out. This practical demonstration was simple in preparation, its success in doing what it was suggested it would do was eagerly awaited. A small circular hole in the centre of each section was loosened up and prepared for either sowing a seed or planting in a seedling. The process went on until planting-out time came, when in each square there were plants of various sorts well rooted and established, which were easily taken out, transferred with soil, roots and plant complete, one special essential being seen to, that each square was moist right through, so that no suffering from this point of view should take place. The whole scheme became so successful that it is in practice, not only by my old students but by myself, as one of the most sure systems of culture of small plants. It is also the most economic in cost, labour, space and, not least, in the gain of time saved by not disturbing the roots.—V. H. LUCAS, *Hurworth-on-Tees*.

BOTANY FOR THE BEGINNER—I

THE PLANT CELL, THE BEGINNING OF ALL PLANT LIFE.

IN this and the following articles, I will endeavour to present to the reader a few of the essential and fundamental facts concerning botanical science, or the study of plant life, in simple and non-technical language. The beginner is, in nine cases out of ten, frightened by the formidable tomes dealing with the subject, and generally decides to give them a miss and devote himself to some other study which can be approached more easily.

Let me, therefore, commence at the beginning — the source, the fountain head as it were, whence all plants, probably all animals, and hence all life, have sprung. It is now generally accepted that all life originated in the sea through the interaction of the so-called ions in the seawater. This vast expanse of ocean teems with millions of living organisms, from the largest fish down to the tiniest of crustacea and flagellates, diatoms and one-celled plants—known as the unicellular algæ. These latter are clearly seen in sluggish streams, and comprise the green scum which floats or lies on their surface. Here we have the simplest form of life that is known to-day. Within one tiny oval or spherical sac, bounded by a thin and transparent elastic wall, all the constructive and dynamic processes which go to produce what we choose to call life take place. Even man, with his laboratories and his elaborate technique and skill, along with his intimate knowledge and close grasp of nature, cannot do what this tiny green speck does. It is the pinnacle to which all scientists would like to attain, and at present it seems improbable that they will ever reach it. Scientists know much of what is to be known about the green cell, but they lack the knowledge of that something which, for want of a better term, may be called the driving force—the engine which produces the necessary interaction of the chemical constituents of the cell and induces organic activity. What does this green cell do? It constructs or synthetises the food material so necessary for the vital activity of the organism, resulting in the case of the plant in growth, and in that of the animal in growth and movement. In much the same way the engine converts the fuel with which it is supplied into the power that is harnessed to drive our machines. Hence this little green cell may be looked upon as one of the greatest of cosmic facts. It builds, from simple inorganic elements, complex organic compounds; and herein lies the fundamental distinction between animals and plants. The animal can only make use of organic material which is already manufactured as such. Unlike the plant, it cannot form from such comparatively simple substances as carbon dioxide (of which there are 3 parts in 10,000 of air) and water the necessary organic matter required for all life's processes. Thus the simple unicell may be looked upon as a factory—a manufacturing centre—wherein these synthetic processes are carried on. The green cell in fact, whether acting as an isolated unit or leading a corporate life, is the chief agent in the production of organic food on the earth's surface.

It has already been mentioned that this cell, or structural unit, resembles a closed vesicle or sac bounded by a limiting membrane or wall which is transparent and capable of stretching and contracting at will. It varies in shape from spherical to oval and from square to rectangular, according to its position and the function that it has to fulfil in the plant body. When the cell is alive and fulfilling its normal functions, the wall will be tense and taut—*i.e.*, a high pressure is maintained in the cell cavity—in the same way as the bladder of a football is in a state of tension when blown up. Within the cell is contained the cell sap, a thin fluid composed of water with dissolved substances in dilute solution. It is these substances, owing to their strong attraction for water (termed "osmotic attraction"), that cause the tension within the cell, resulting in the stretching of the wall and the formation of spaces called vacuoles filled with this watery sap. These ultimately all join together to form one central vacuole. This cavity is limited by the cell wall and is controlled by a living layer or film of plasm which is just within the cell wall, forming an internal lining to it—what the bladder is to the outside cover of a football, to use our previous illustration. In this plasm—the cytoplasm or living substance—is embedded a body of the greatest importance in the functional duties of the cell. It is the nucleus which governs the growth and reproduction of the cell. This body, composed of denser plasm, appears in the form of a fine network of strands irregularly thickened. The whole structure is encased in a thin membrane and a sap is contained within. From this network at the time of cell division there arise the chromosomes by the breaking up of the threads or strands into minute pieces. It is now generally accepted that the chromosomes are the bearers of hereditary characters, and are of outstanding importance in questions of crossing, heredity, variation and evolution. Since these parts are all colourless, the grains which carry the green colouring matter known as chlorophyll stand out on microscopic examination.

Just a word in passing regarding chlorophyll. It is made up of four pigments, and these are present in what is termed a colloidal solution (a solution like starch and water). Large numbers of these chloroplasts (colour bearers) are to be found in a single cell of this description embedded in the general plasm. Those which lie in the peripheral plasm do not remain fixed in position but move according to the degrees of light intensity; and here we have the explanation of why, for example, a leaf growing in the shade is dark green, while out in bright sunlight it is of a lighter shade.

One question which will naturally be asked by the beginner is why these bodies are green. The answer is because of their relation to light. Everyone knows that light (the sun's rays) can be analysed into a spectrum of colours, as is clearly seen in a rainbow, and if a beam of light be projected through a solution of chlorophyll the resultant spectrum after traversing the solution will show dark absorption bands. These occur mainly in the red and violet rays, with a slight one in the yellow, which leads us to suppose rightly that part of these rays is absorbed and held by the chloroplasts, the green colour

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being allowed to pass on. The light received in this way, which must be of a sufficient illumination, constitutes a supply of energy which is stored up till required, and is the real active force in the formation of the necessary combustible material. We have already seen that each cell must have a full supply of water in order to function normally, with, in addition, a plentiful supply of atmospheric air which contains the carbon dioxide gas. In a later article we shall see how those two fundamental substances are supplied to the cell when we discuss the green leaf, and that how with light, a certain minimum of temperature, air and water, the vital activity of the cell, and hence of the plant, which results in growth and all its attendant physiological processes, is carried on.

It may suffice here to state that, through the interaction of these raw materials and the stimulus of light-energy, certain creative changes take place which result first in the formation of sugars, which are later converted into a less insoluble form which we know as starch. This is stored and forms a source of potential energy and food supply. Thus we have arrived at the end point, the formation of starch—a carbohydrate—from carbon dioxide and water, aided by a certain temperature and the energy of the sun's rays.

One cannot fail to realise the extraordinary importance of the individual green cell, which is self-supporting and self-governing. It is a living entity, an indivisible unit, exhibiting and displaying all those characteristics associated with the larger plants, which are, after all, simply a collection of these cellular units wherein a division of labour has taken place, and in which, owing to centralisation leading to economy of space, each cell or group of cells has been given a separate function to carry out and in consequence has become modified in relation to its particular set of duties. Such division of labour is one of the leading features in the organisation of any multicellular plant; even an ordinary green leaf, which I will deal with in the next article, serves admirably to illustrate the general principle. G. C. TAYLOR.

GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants.

GREENHOUSE

GROWING FOLIAGE TO MIX WITH FLOWERS.

FLOWERS, whether they are grown to be cut and placed in vases in a dwelling house, or to develop and fade on the plants for the embellishment of the greenhouse or conservatory, always look more charming when associated with suitable foliage. I am confining my remarks, in this note, to green foliage. Smilax, usually grown in a temperate house, may be successfully grown in a cool one in the southern counties. I have not had this experience myself, but I was assured, quite recently, by a gardener in this district that the plants would survive several degrees of frost without injury. Except as an experiment I would not grow the plants outside; but there are many walls in greenhouses suitable for it, and these may be quickly covered by healthy plants grown in a rich sandy loam and a small quantity of peat. The foliage makes a splendid permanent background, and it is always available for cutting. Another splendid cool house plant is Asparagus Sprengeri, which requires a rich sandy soil and plenty of moisture. Fine plants may be grown at the side of the path under the stage; also in baskets and pots. Asparagus is a more refined plant and requires a little more heat. Fern, Pteris tremula, planted out in greenhouse or conservatory borders, will supply a great many fronds for cutting. The maidenhair, Adiantum cuneatum, does best in pots, and both will thrive in fibrous loam and leaf-soil. For the sake of the foliage alone, it is worth while potting up now a few old plants of Spiræa japonica, the leaves will then be available in spring.—G.

PRUNING YOUNG VINES AND THOSE HAVING OLD SPURS.

I FEEL quite sure that many readers who have not had much experience in the pruning of vines will appreciate a few hints on the subject. Very much depends on the way the pruning is done; the young vine may be partly spoiled from forming a true, well balanced rod by wrong pruning, and old spurs, too, may be left to become worse every year unless the pruning is correct. A young vine, having made a year's growth after being planted in its permanent border, should be so pruned that the branches will be, approximately, 2ft. apart and placed alternately on both sides of the main rod. Whether one or a houseful of vines is to be dealt with, this system of building up the rod should be followed. The system of training a young vine during its first year's growth after planting has been explained in previous issues of THE GARDEN, and such vines will now be similar to the one shown in the sketch. The side shoots *a*, *b*

and *c* respectively, should be pruned as the cross lines denote. The buds *d*, *e* and *f* will develop, in due course, into side shoots if the leader is cut back at *g*, the top bud to form another leader. The remaining buds should be rubbed out as soon as they begin to grow. On a neglected old spur the best-placed shoot should be pruned as shown at *h*, and any smaller ones as shown at *i*, *i* cut out entirely. A bud similar to the one at *j* generally contains an embryo bunch of grapes, while a thin pointed bud, similar to the one at *k*, makes a wood shoot only.—GEORGE GARNER.

PRIMULINUS GLADIOLI IN POTS.

IT is not generally known that the graceful primulinus varieties of the gladiolus do quite well in pots. The compost should be a fairly rich one, consisting of fibrous loam to which a moderate addition of gritty sand has been added and up to 1 part in 5 of cow-manure which has been dried and rubbed through a sieve. Three or four corms are generally placed in an 8in. pot; the pots are watered and not plunged, but kept fairly cool while roots are forming. When growth really commences in earnest, plenty of water is required, and when buds appear liquid feeding may be resorted to. A pot of Woodcote is a gorgeous thing, and almost equally fine are the small-flowered Nydia, Psyche, Pansy and Maiden's Blush.—LANARKSHIRE.

TREES AND SHRUBS

SUMMER AND WINTER MULCHING.

[*The following contribution has been sent in by one of the best known gardeners. Although we do not entirely agree with Mr. Coutts' conclusions, as applied to shrubs such as rhododendrons, this note is interesting as a protest against indiscriminate mulching.*—ED.]

MULCHING, as is generally understood is the application of some protective or manurial material to the surface of the ground to prevent excessive evaporation, and to conserve the soil moisture during dry weather. When applied during the winter, it is usually of a protective nature, being used to protect the roots of newly planted or doubtfully hardy plants from the harmful effects of severe frost.

That this important garden operation is too often misunderstood and abused in practice is undoubtedly true. As a result of this abuse it is possible for much harm to result to the plants in question.

A better and wider understanding of the fact that a well aerated root run is essential for the well-being of most plants, would prevent much of the damage that results from the indiscriminate use of mulching material.

The injury may result from various causes, such as the too early application of mulching material, before the soil is properly warmed up. This may result in the roots being kept in a cold and stagnant condition right through out the summer. This is all the more likely to happen if the material is of the wrong kind and applied too thickly, and also if the summer proves wet and cold. I may add here that all material used for mulching should be of

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such a loose, open character that it is easily permeable by air and warmth, such as strawy litter or partially decayed leaves. Many cultivators err in applying the mulching material too thickly. The ideal application should be just a mere sprinkling, even if it should be necessary to renew it later on in the season, but under our climatic conditions this is not usually necessary, and even with ideal material it should never exceed 3ins. in depth.

Before a mulch is applied, the ground, wherever possible, should be stirred to the depth of several inches with a digging fork. This will ensure the aeration of the soil for a short time. Much damage may result in various ways from too heavy applications of mulching material, apart from preventing the proper aeration of the soil, which in itself is serious enough. One of the main faults is that it soon induces sour, acid conditions, which is fatal to a healthy root system. Again, the material is often piled up round the stem of the plants to a depth of six or more inches ; this, in the case of woody plants often proves fatal, unless the mulch is of a very light and loose nature. I have in my experience observed much damage, ill-health and even death result from this practice. For example, I have seen many rhododendrons—and here I include azaleas—injured and often killed by too deep planting and the application of too much mulching material. In this case many cultivators imagine that rhododendrons will throw out fresh roots from the stem into the mulching material. This is quite true, if they are given time to do so, but it is a slow and gradual process, and can only happen when a thin sprinkling of leaves is applied every year, and in this connection we would do well to observe what happens naturally where leaves fall or collect under plants of this class. The thin layer decays from year to year and gradually becomes filled with roots.

I only take the rhododendron as an example of what happens from an excess of mulching, because I have seen much harm result to this class of plant, but the same principle applies, more or less, to all plants.

Apart from conserving moisture and warmth, mulches which consist of stable litter, well decayed farmyard manure or leaves, have a definite manurial value, and are usually applied for this purpose, as well as for conserving soil moisture. Mulches are commonly applied to fruit trees and vegetable crops with the definite idea of supplying manure to the respective crops during critical periods of their growth. Provided the material is of a suitable character and properly applied there is no doubt they have a definite manurial value. In mulches of this kind the manurial constituents are either gradually washed into the soil by rain, or if applied in dry weather, it is advisable to give a heavy watering after application.

By observation one is forced to the conclusion that much time and material are wasted by applying mulches in the wrong place. How often in the case of fruit and other trees do we see it applied to a small area just round the stem of the tree, where it can do little or no good, for we may take it for granted that in the case of established trees the roots that matter are much farther afield. When applied for purely protective purposes the material may have no manurial value; such material may consist of a thin layer of straw, dry bracken, coconut fibre, finely sifted peat moss litter or ashes ; all these are excellent for the protection from frost of more or less tender bulbs and other plants.

Having dealt with the various materials generally used for mulching, I now turn to what, in my opinion, is the most valuable of all methods of mulching, that is, surface cultivation. After what is usually called a life experience in horticulture in various parts of the country, I have no hesitation in saying that this, in most cases is the simplest and best way of conserving soil moisture during dry weather: best because a layer of dry soil is an ideal mulch, and at the same time the soil is kept aerated, which for the health of the plant is just as important as conserving the moisture. It also serves a double purpose as weeds are kept down at the same time.

Thus, wherever the character of the crop permits of it, the surface soil should be kept stirred to a depth of about 3ins. This can be done by means of the Dutch hoe or by some of the excellent cultivators that are now in general use, the hoe breaking the capillary tubes, while the loose surface layer of soil prevents evaporation. I have seen collections of roses that were regularly mulched, both summer and winter, improve immensely in health when mulching was discontinued altogether, and the top 3ins. of the soil kept loose with the hoe or cultivator. It will thus be seen that valuable as mulching is in garden practice, it must be applied with intelligence or else much harm may result. This is, I know, a highly controversial subject and opinions differ very much among cultivators' as to the value of mulching, as well as to the time and method of applying it.—J. COUTTS.

FRUIT

THE PRUNING OF TRAINED HARDY FRUIT TREES.

TO many the work of pruning is a stumbling block, but before such a task is undertaken, each tree should be studied, and once its mode of fruit bearing is understood, the beginner is less liable to make mistakes. Among the objects of pruning are the thinning and removal of all shoots not required for the future welfare of the tree, the cutting out of all decayed and diseased growths, and regulating the branches so that plenty of light and air can reach all parts of the tree. The pruning of hardy fruit trees is carried out from early December to February.

Among the fruits trained on walls, fences, arches, and by the side of garden walks, are apples, cherries, plums, pears, apricots, peaches and nectarines. It is not often the apple is afforded the protection of a wall, but good dessert varieties are sometimes grown as cordons. Until the allotted space is filled the main growth is allowed to develop and at the winter pruning it is cut back to six buds, while the remaining shoots are reduced to three or four buds. The same procedure is adopted with cordons trained over arches, or on wire supports. A bush tree, and a pyramid require much the same treatment ; extension shoots being cut back about half or one third their length, and the other growths to four buds. Any shoots not needed must be removed, or the tree will eventually become overcrowded. The cherry is best grown on walls in a private garden, and fan-trained trees are usually chosen. The object is to secure a well balanced specimen, and during the time the tree is covering its space the leading shoots are allowed to develop about 16ins. or 20ins., the necessary cutting back being performed in winter. The side shoots are pinched during the summer months and further reduced at the winter pruning to three or four buds. Any weak growths that are likely to produce overcrowding must be cut out at their base.

The Morello cherry requires different pruning from that of the sweet cherry, inasmuch as fruit is borne on growths of the previous summer. These shoots are tied in, and older wood is removed much in the same way as with peaches and nectarines.

The two first mentioned are largely grown under glass, but they are a success outside. Disbudding early in the season plays an important part with peaches and nectarines, and if this is done correctly little pruning will be needed in winter. This consists in cutting out old wood, so that the new shoots when tied in will be about 4ins. apart. All growths that push outwards from the wall must be removed, which is best carried out in summer.

The plum is quite hardy, but the finest varieties are often grown on walls, the fan-trained trees being the best. Every effort should be made to keep the bottom of the tree well furnished with healthy growth, remembering that there will always be plenty at the top. The main or leading branches are shortened about one-third of their length until the trees have filled their allotted space, when it will be necessary to cut them back much more severely. All the side growths that will not upset the balance or shape of the tree are pinched back to about seven leaves in July, and at the winter pruning cut down to three buds. Any badly placed shoots of all trained trees should be removed early in the season, and in the case of plums it ought to be borne in mind that growth of medium size is more profitable than that which is very robust. A certain amount of disbudding will be beneficial in the spring, if carried out with the future welfare of the tree in mind.

Pears are often grown as cordons and fan-shaped trees, on walls or on wires stretched alongside the garden paths or walks. Their treatment in regard to pruning is much the same as the apple. Cordon trees should be trained obliquely, and occasionally such examples become very vigorous, producing a quantity of rank wood and little or no fruit. Here it will be necessary to root-prune, and with small trees it is best to lift them, cutting back all the thick roots and retaining as many fibrous roots as possible. When re-planting do not bury the roots too deeply, and a little fresh loam and mortar rubble can be added with advantage. Make the soil quite firm, and do not render the tree fast to the wires until the earth has settled down.

Apricots are not grown to any extent and the less use made of the knife the better. Consequently the pruning, pinching and disbudding are spread over the summer months, and if such work is carried out judiciously, there will be little to do in winter. The best shoots are tied in about July, and the winter pruning is carried out directly the leaves fall. All side growths are reduced and badly placed shoots may be cut out.—T. W. B.

MISCELLANEOUS

THE USE AND ABUSE OF LIME.

THERE is, perhaps, no more valuable asset to the gardener than lime, and yet it is surprising how often, for general purposes, its correct uses are misunderstood. There are many whose sole prescription for practically all garden ailments consists of a good dressing of this substance in some form or other, in spite of the fact that, on many soils, constant overdoses of lime are likely to be injurious rather than helpful. Although satisfactory results are unobtainable without the presence of a certain quantity of free lime in the soil, lime in itself is not a fertiliser. It tends to sweeten a sour soil and is certainly of great assistance in lightening heavy ground and making it more workable. To apply wholesale quantities to ground that is already well supplied with lime is certainly a wasteful procedure, quite apart from the possibility of harmful after-effects. A very simple test can be made to ascertain whether lime is present in any particular spot. Take a small quantity of the soil and after mixing it with water in a glass jar to the consistency of paste, pour into the mixture a little hydrochloric acid. If the liquid bubbles freely there is sufficient lime in the soil, while its

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proportionate deficiency is shown by the absence or feeble nature of the effervescence. If required, a good dressing of lime can then be given, and, under ordinary circumstances, further applications should not be required for two or three years. The best time for such a dressing is either in winter or early spring, when the ground is free from crops and before other fertilisers are applied.—J. C.

FERN GARDENS.

NO rock garden is really complete without a certain proportion of it is allotted to ferns. Hardy ferns produce so pleasing an effect that to omit them is only to half finish the rockery. Whenever one's mind pictures a beautiful range of rocks in some valley, our imagination at once reminds us of the lovely ferns growing out of the crevices.

The main principle to be borne in mind in planting is proper drainage, for nothing is more detrimental to ferns than stagnation. Constant damp is ruinous. It is, therefore, desirable that plenty of broken bricks and similar rubbish should be used as a foundation to the rockery beneath the soil, which should be raised as a preliminary to embedding rocks or burrs to form the rockery proper. Of course, when planning a fern garden, much will depend on the local surroundings; ferns, being naturally fond of shady places, will need to be sheltered from wind and burning sunshine, so that they can display their fronds to full advantage. It is a good plan, before starting to plant, to study the various peculiarities of the different ferns. Thus, the common polypody and all the spleenworts can be used for covering bare walls; while for the small crevices in the rockery, such ferns as the polypodies and the limestone will make quite an effective display. The royal fern, the lady fern and Osmunda regalis, being all lovers of moisture, should be planted at the base of the rockwork.

For the general filling in of space, such ferns as the lastreas and polystichums will be the most suitable, as they require more root room than any of the other sorts.

A pleasing feature that should be introduced into the rockery is a moraine, for it is admirably suitable for showing off ferns effectively.

The best position is on a site that is slightly sloping. Dig out the soil to a depth of about 2½ft., and fill in the bottom with some broken brickbats for a foundation, to a depth of 9ins.; over this, fill in a layer of small stones about 3ins. deep, and fill in the rest of the space with a mixture of soil and stone chippings. When the ferns have become established, the moraine will look well for years without much attention, save keeping tidy.—G. BARTON.

BOOK REVIEW

GARDENING, as with the majority of subjects, becomes an increasingly complex subject as the years go on, and the reasons are not far to seek. The arrival of hundreds of new plants from different corners of the world, and the consequent rearrangement of our ideas regarding the formation of different types of garden and the plants to be included in them, together with improved and better methods of cultivation and propagation in all branches of the subject, have, within the last fifteen to twenty years, created the need for a comprehensive and up-to-date work on practical horticulture. True, literature has, to a certain extent, kept pace with the growing confines of the subject and has given us numerous volumes, both large and small, dealing with every particular aspect. The present work "The Gardener's Assistant," edited by William Watson and published in six volumes by the Gresham Publishing Company, Limited, Chandos Street, W.C.2, price 12s. 6d. per volume, supplies the need for a sound and comprehensive guide to practical gardening. This new edition, the fourth since Thompson published the first edition of it in 1859, is the outcome of many years of labour on the part of the numerous contributors, whose names, be it added, stand as testimony to the excellence and accuracy of the subject matter. The three previous editions have already gained for the work a high reputation in the gardening world, which will be easily maintained, if not surpassed, by the present one.

All branches and aspects of practical and scientific horticulture are treated within its pages. It may be said that it presents, in what is, after all, comparatively little space, the sum total of our gardening knowledge to date. The work is, indeed, too large to detail all that is dealt with, but the above may serve to indicate the wide field covered by the six volumes.

The method of arrangement of the subject matter is to be commended. It is thoroughly practical in its aim. To each branch, together with its allied subjects, is devoted a definite section, and these latter are correlated by means of cross references. In addition, there is a comprehensive index which will be found of great service. The information given on all points, from the most important items to the most minute details, is clear and concise, and easily found and sorted out from the mass of material presented.

It appeals to all who garden, professional and amateur. The former will find it of the greatest possible use in supplying a ready and satisfactory answer to all those detailed questions which crop up with marked persistency in the carrying out of gardening duties. It is full of counsel and advice in all practical matters which the working gardener should be only too pleased to consult and follow. To the amateur, it comes, like the Waverley Pen, as a boon and a blessing. There is nothing forbidding in its appearance or in the text. All the simple details as well as the intricacies of the many and varied gardening operations are fully given and described, so that the mere tyro will find little difficulty in following the instructions. Adequate descriptions of each and all classes of plants are fully and lucidly given, together with cultural notes and the position that they should occupy in the garden. There is yet another class of gardener who will find it lives up to its title, namely, the commercial or market gardener. The many what might be termed useful "tips" in the various sections he will find convincing, even when regarded from his standpoint. All nurserymen and trade growers will discover in its pages much to interest them. It may even assist them in their own specialised line.

As has already been said, it is a work for all garden lovers. The volumes are well and clearly printed and are profusely illustrated by means of a series of full-page coloured plates, together with numerous fine half-tone reproductions and many line drawings, serving to illustrate more clearly explanations in the text. It appears remarkably free from errors in plant names, which in itself is an undoubted asset in a work of this description, and although it does not include some of the latest introductions to our gardens, such omissions are of no account, considering the size and scope of this excellent work. G. C. T.

TRADE NOTES.

At the recent Birmingham Chrysanthemum Society's Show Messrs. Webbs of Stourbridge staged a fine exhibit of vegetables, comprising some seventy-five dishes, which was awarded a large gold medal. Prominent features of the display were fine dishes of Webbs, Champion Prize leek, Perfection Pink and Giant White celery, Autumn Queen cauliflower, Advancer savoy, Reliance Globe beet, Marrowfat parsnip, and Standard and Defiance Intermediate carrots. The well arranged stand is shown in the accompanying illustration.

MESSRS. WEBB'S GOLD MEDAL EXHIBIT OF VEGETABLES AT BIRMINGHAM.

The majority of gardeners have all a liking for "my Lady Nicotine," and at this season of the year there is no more suitable present than a box of Player's No. 3 Virginia cigarettes. A box of these along with a book on gardening will prove most acceptable and seasonable. Messrs. Player's cigarettes are sufficiently well known with some forty years' reputation behind them, and "No. 3" still further establishes their quality and excellence. They are made from the choicest Virginia tobacco, which all gardeners will enjoy.

THREE NEW SEEDLING POTATOES.

All vegetable enthusiasts will be interested in three new seedling potatoes which are being offered by Messrs. Garden Supplies, Limited, Liverpool. Two of these, Keay's Champion and Sefton Wonder, are immune to wart and black scab. The former, essentially a farmer's potato, is a seedling from Majestic crossed with a red kidney variety and resembles King Edward in shape a

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colour. It has the reputation of being a heavy cropper in poor soils. The latter, Sefton Wonder, has been raised from Great Scot, and is classed by the Board of Agriculture as an immune second early. It is earlier than Great Scot, a heavier cropper and with better keeping qualities. The third variety is Glen Ericht, which has already won its spurs in a competition open to members of the L. M. & S. Railway. More of this variety will probably be heard in the future.

An excellent and useful companion to the Spade Boot Scraper, which is already on the market, has appeared in the Spade Boot Brush, which is equally to be recommended as a preventive against the bringing in of mud into the house after the gardening duties have been completed. It has many good points, which can be seen in the accompanying illustration. The brush itself is raised off the ground by three iron feet, and this enables the top part of the boot to be cleaned more easily, whereas with the old type there was always a difficulty in cleaning this part. The bristles of the brush are of good quality and not liable to rot if left out in the rain. An additional advantage is that the mud falls off automatically, thus not clogging the bristles. They are certainly the most up-to-date appliances for cleaning muddy boots, and are admirable for use after gardening. They are obtainable from any of the London stores or direct from "Spade Scrapers," Wappenham, Towcester, Northants. The price is moderate and will be found to compare favourably with that of the old type.

NORWICH CHRYSANTHEMUM SHOW

THIS three day fixture was held on November 19th, 20th, and 21st, in St. Andrew's Hall, Norwich. The chrysanthemums and other exhibits were well up to any previous standard, indeed, in the class for thirty-six blooms there were to be seen even better blooms than usual. The best Japanese bloom in the show was a magnificent specimen of Mrs. G. Carpenter, included in an exhibit staged by Mr. Bentley, Langley Park Gardens, Norfolk. The Norwich Corporation had a very fine group of pot chrysanthemums and foliage plants; for this Captain Sandys Winsch, the Parks Superintendent, received many personal congratulations. The Misses McLintock, Catton Grove, Norwich, also staged a beautiful group, wherein they had endeavoured to convey an artistic impression of red, terra-cotta and gold. There was keen competition in the hall-vase and decorated basket sections. In the latter, Mr. Gordon Lang, Plumstead, deserved the honour of first place, with a most artistic production.

In other sections a feature of note was the collection of berried plants from the Norwich Corporation, which has now taken over Earlham Hall, where the late Mr. Sydney Morris established such a choice collection of these shrubs.

Begonias made a very bright display, especially the newer hybrid, winter-flowering types. Primulas were represented by four distinct types, malacoides, kewensis, obconica and sinensis, all carrying a profusion of flowers. An interesting feature was a display of seedling nerine blooms, staged by Mr. Sam High, gardener to Mr. J. A. Christie, M.P., Framingham. Their brightness seemed to attract special attention.

In the fruit section the outstanding feature was the wonderful display of apples. The colour and quality left nothing to be desired. There were over 100 entries and many classes were for twelve, six and three dishes.

The classes for grapes were nearly all "topped" in the prize awards by the splendid examples staged by Mr. William Allan (Gunton Park Gardens).

The trade growers helped materially in the attractiveness and educational side of the show.

Messrs. Daniels, Bros., Limited, Norwich, had made a feature of apples from their fruit nursery at Tunstead, and vegetables from their pedigree stocks. Messrs. Allwood Bros. and Mr. C. Engelmann had displays of carnations; Messrs. Keith, Luxford and Co., chrysanthemums; Messrs. Clibrans, cyclamen; Messrs. A. Reeves and Co., Catton, Norwich, fruit and fruit trees; and Messrs. Suttons a fine array of vegetables.

Five Pounds for Articles on Carnations.—The President of the British Carnation Society offers the following prizes for the best articles on Perpetual-flowering Carnations: First prize, £2 10s.; second prize, £1 10s.; third prize, £1. Open to amateurs, gardeners and nursery employees who are members or who may become members of the British Carnation Society. The treatment of the subject is left entirely open, allowing members to write on as many phases of the carnation, its culture and decorative value, as they desire. Papers to contain not fewer than 1,000 and not more than 1,500 words, to be in the hands of the hon. secretary, Mr. P. F. Bunyard, 57, Kidderminster Road, Croydon, before February 28th, 1926, under a *nom de plume*; a separate sealed envelope to contain the name and address of the writer. The papers will be judged by the editor of the Society's Bulletin, assisted by two gentlemen appointed by the committee. The three best will be published in the Bulletin, others possessing merit may also be published in whole or part.

CATALOGUE RECEIVED

Messrs. Hillier and Sons, Winchester.—Hardy Trees and Shrubs, including an exceptionally fine collection of new Chinese species, which will attract all shrub lovers. Quite a number of rare species of rhododendrons is also offered.

CORRECTION.

We much regret an error which appeared in Messrs. Carson and Son's advertisement on page iii. The text should have read as follows: "'Vitrolite,' superior to white lead paint, 18/6 per gallon." No inconvenience has been caused, we trust, through this mistake.

It may be of interest to many of our readers to learn that Mr. Percy S. Cane has returned from America, where he has been designing many gardens, and has taken up residence again at Westminster Palace Gardens.

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Some of the Species we can supply by the hundred, and shall be pleased to quote special rates for a quantity.

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VOL. LXXXIX.—No. 2821 DECEMBER 12, 1925

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THE END OF THE YEAR

I LUNCHED the other day with a friend, an author who makes his bread and butter by writing short stories for the magazines, and very good stories they are. I found him shivering and very cross. His last three days had been spent in working out the plots of a series of summer stories where beautiful maidens loll about in punts and the villain is overheated in a thin silk shirt and a pair of Oxford trousers. A writer on horticulture has to have a certain amount of imagination, but now and then he can write on subjects of immediate interest and so find himself in an appropriate mood. At the present moment I could write an authoritative article on the importance of proper heating in a stove house, but that is, perhaps, beside the point.

At the time of writing we are experiencing the most seasonable winter weather that we have had for many years. It is true that it retards much important work in the garden. A great deal that ought to be done is half completed or not started. Still a hard winter was badly needed and should do a great deal of good in all gardens. Now that the year is drawing to a close I think that all gardeners can congratulate themselves on the results of the past year. On the whole it has been a good year for gardens.

When, in the distant future, the history of present day gardening comes to be written, I believe that the authors will discover that the years 1921–31 have shown the greatest advance in horticulture that has ever been seen. Unlike other changes, the transition since the war has been sudden. Many of the great gardens of the past have disappeared or have been so curtailed as to lose their importance. Luckily, the professional gardeners survive, for they make up a magnificent body of men, hard-working, practical, knowledgeable. On the other hand they have to work in a more confined and intimate area and so evolution is taking place among them. Where the post-war change is most noticeable is in the enormous new class of amateur gardeners that is coming into being. There have been amateurs in the past, but they have usually played at gardening and left the hard work to others; now the amateur works as hard in his spare time as the professional. He not only enjoys, but plays a large part in the well-being of his garden. Many cannot afford to hire labour; the wise ones cut their cloth accordingly, and the ambitious may try too much, but even they are running along the right lines.

The formation of this large class of enthusiasts has raised the standard of the amateur horticulturist enormously. They are keen to learn the best methods, they willingly acknowledge faults into which their inexperience has led them, they are ready to take advice, they are willing to pass on their experiences to others. They form a fresh driving force that should be of immense assistance to horticulture for many years to come.

This new type of horticulturist is not satisfied with knowing a fact; he wants to know the reason for all he does. He wants the best and sees that he gets it. That is one of the reasons why THE GARDEN makes such an appeal to all keen, intelligent gardeners. We try to make the paper a clearing-house for all matters that deal with the highways and byways of horticulture. In its new and more popular form, we hope that THE GARDEN appeals alike to the specialist in some particular plant and to the keen amateur who desires above all to make his garden as beautiful as possible throughout most of the year. We try our best to keep away from the stereotyped form of gardening article and to make the points we wish to emphasise as palatable reading as possible. In order to do this we have made three main features in the paper, Notes of the Week, Correspondence and Notes on Garden Technique. They all have an excellent bearing on the importance of co-operation between the reader and the paper, which we try to emphasise as much as possible. We are pleased to see how these three features in particular are becoming more and more appreciated by our readers, as is shown by the constant messages of congratulation that we receive. I hope that during the coming year they will become even more prominent, for, in truth, they are run by readers for readers; the editorial staff merely sorts them out and arranges them.

As this is the season for giving and receiving, may I point out that there are few more acceptable presents than a year's subscription to THE GARDEN. This subscription will ensure a pleasant gift to the recipient and will also make a Christmas present for us. The more readers we obtain, the more we can give in return and the greater will be the value of the pages of THE GARDEN as *the* clearing-house for all gardening information.

E. H. M. C.

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

SOME NIVALIS PRIMULAS FROM TIBET.
BIRCHES (*continued*), by E. H. Wilson.
RENOVATION OF OLD GARDEN HEDGES.

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THE DECORATION OF PAVED GARDEN PATHS

THE present-day fashion for paved paths in the garden, when not overdone, gives just that finishing touch to set off the flowers in the beds and borders. There are two methods of laying the stones in such paths. Architects, who are more and more frequently designing the gardens to go with their houses, seem to favour properly squared stones set in cement according to a geometrical design, the plans for which have been carefully drawn out in the office. This method has one great advantage over all others in that it is impossible for weeds to spring up between the stones, the paths, too, being perfectly level, are excellent to walk upon.

The other method, usually referred to as "crazy paving," gives the gardener a much greater opportunity for exercising his originality. Here the stones are laid in earth just anyhow with little spaces at the junctures of every two or three of them.

The straight edge of a path set in cement can be broken by means of plants of a decumbent habit, such as Veronica rupestris, which forms fine little green tufts encroaching on the stones, tufts which in due season will give place to lovely patches of blue. Nepeta Mussini with its pale lavender spikes is another low-growing herb which seems to have been created for this purpose.

A sunk birds'-bath, too, may be constructed at the juncture of two paths or at the end of an alley. Formally clipped trees of box, yew or bay, either in tubs or in spaces left between the stones, form an admirable decoration for paths of this kind.

But it is in the decoration of crazy paving that the amateur gardener has his chance of showing his knowlege of the habits of the various plants which are suitable for the decoration of such paths.

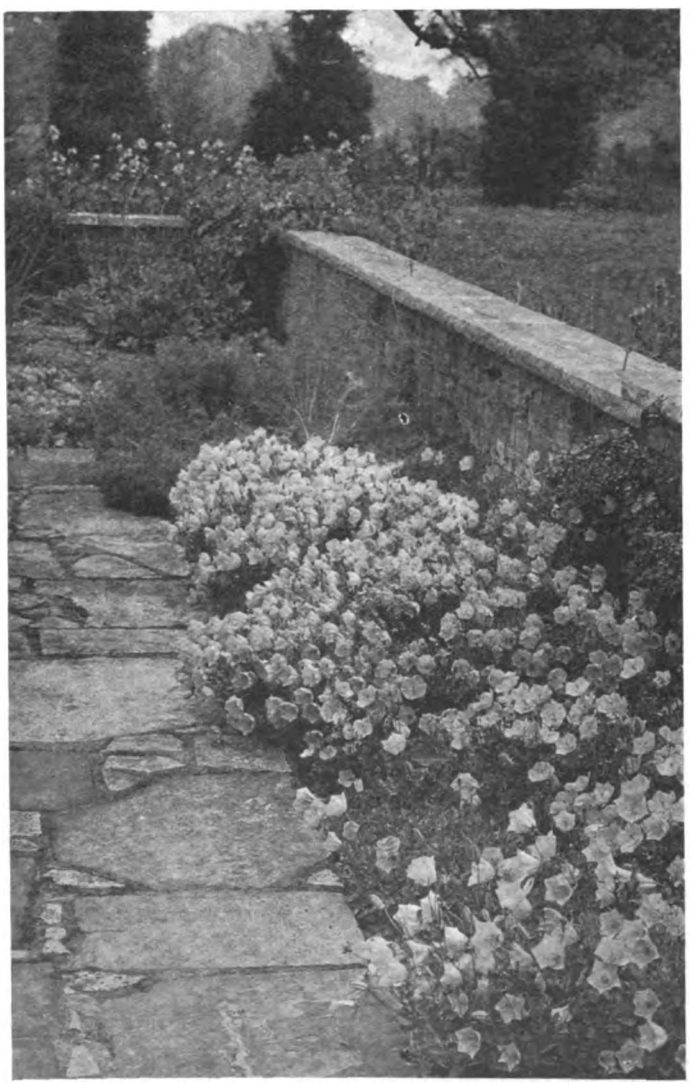
The centre of a path leading from one part of the garden to another or from the roadway to the house traversed daily by many who are not any too particular where they tread should always be kept perfectly clear. The edges alone of such a path should be adorned, and even then only by very close-growing plants, which show but little objection to the occasional pressure of an erring foot. Such plants are the acænas, both the one with silvery grey foliage and that with coppery coloured leaves. These produce charming little flowers in June, which, however, can hardly be considered exactly conspicuous. The close-growing thymes are quite suitable too, emitting a delightful odour when trodden on, and some of them produce dense patches of the most gorgeous wine-coloured flowers. They creep over the stones and partly cover them in the most delightful manner, and their flowers form a pleasant contrast with the colour of the stones. A really hot summer seems to suit them admirably and they show no signs of distress from lack of moisture.

For a shady part of the path, and particularly where it is a little moist, we have Arenaria balearica with its minute dark green leaves studded in June and July with tiny white star-like flowers supported on very short stems. Then there is a little oxalis with dark red leaves which will clothe the stones along the edge of a path. It has charming little yellow flowers which contrast well with the red leaves and set their seed very freely. In fact, if not kept well within bounds, this plant may become a perfect nuisance. We must not forget violet cress with the wonderful Latin name, Ionopsidium, which usually causes consternation to the indiscreet enquirer as to the name of this charming little plant. Sown with a little sand in the crevices between the stones, it will flower a few weeks later, set its seed, and the seedlings will flower again before the summer is past. This little annual, which comcs to us from Portugal, has praiseworthy manners and knows how to keep its place.

The stonecrops, too, both the yellow and the white, make a splendid decoration planted here and there along the edge of a path. There is a very close-growing one with silvery grey leaves, but, unfortunately, this seems to be very slow growing.

Where crazy paving is used for purely decorative purposes, as round a sundial, for instance, or a garden figure on a pedestal, there is no reason why every little crevice should not contain some plant, provided always that a clear space be left on the north of the dial from which the time may be read without casting a shadow on the ancient timepiece. Such places are not intended for the passage of careless feet, and choicer plants with a more pronounced bias against being trodden upon may here be selected. And there are a great number of such plants from which we can make our selection. Here is the place for hummocks of thrift to rise among the stones. Little mossy mounds of various saxifrages, which will be studded in their due season with flowers of pink, white, red and yellow. Then we can have lovely little tuffets of the saxifrages of the London pride group, from which the little spotted flowers will spring on their slender stems. A fine yellow oxalis with dark green shamrock leaves will form a pleasant contrast to a wine-coloured thyme creeping among the stones. A seedling viola, a plant or two of self-sown forget-me-not, a Tom Thumb nasturtium, a coloured primrose, all help to add colour to what is virtually a rock garden in one plane. Later on a dwarf campanula may grow between the stones and open its dainty bells of white or mauve.

The base of the sundial, be this round or square, may be set off by a narrow bed some 3ins. or 4ins. across, bounded on the one side by the base of the dial on the other by the crazy paving. In it we can plant a profusion of the smaller spring bulbs: chionodoxas, scillas, grape hyacinths and crocuses. We can set it thick with little pink daisies of the Dresden china type. We can sow it with nemophila, phacelia or blood-red dwarf nasturtiums, each in its proper season forming a fairy ring of flowers almost all the year round.



THE DWARF CAMPANULAS ARE MOST ATTRACTIVE WHEN MASSED BY THE PATHSIDE.

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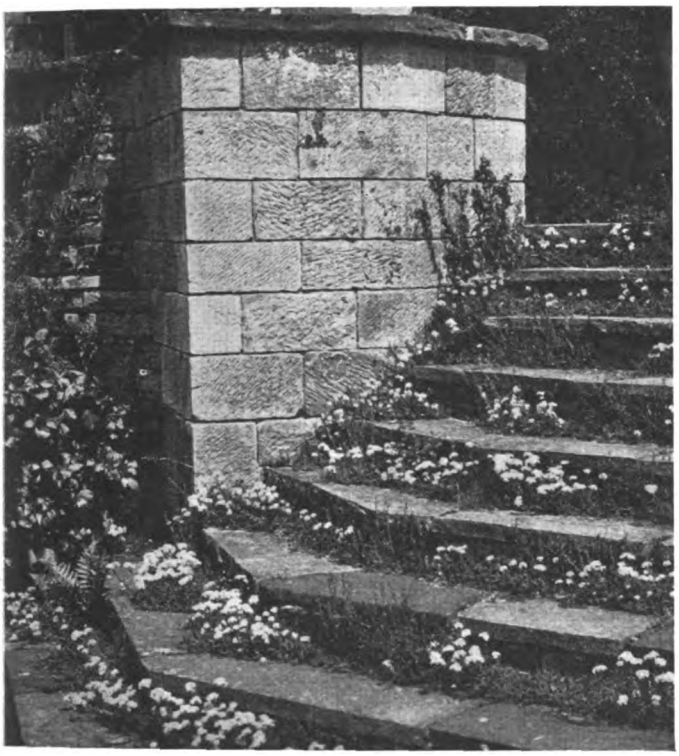


AN EFFECTIVE DECORATION OF GARDEN STEPS.

Then there are sure to be steps in the paths where the garden is not all on one level, and what garden ever is ? These, too, must be suitably decorated, and we must not forget that the primary object of steps is to take one up or down the paths. It is, therefore, only the edges or the corner angles which should be planted, though occasionally Nature will set a little plant close to the bottom step between it and the path. Clothing the sides of the steps there may be planted two fairly large clumps of a dwarf mauve campanula set off by a large plant of the half-hardy Oxalis rosea, which lives out of doors all the year round in this mild climate. Along the bottom of the granite steps and interspersed among the larger masses of colour, Welsh poppies can be allowed to sow themselves. They give just that added touch of clear yellow which is so necessary to enhance the colour scheme.

For the corners of the steps perhaps we may venture on a little fern, or a house-leek or two, but they must be well tucked in so as to avoid a kick from some ascending boot.

For those with a passion for blue—and does any other colour look so well against the stones ?—the Apennine anemone is admirably adapted for the decoration of a shady corner of the steps. Planted with common thyme, the flowers will find their way to the light, and when they are gone the thyme is there to clothe the edge of the steps and exhale its lovely scent when brushed by passers-by. Lithospermum prostratum makes a gorgeous gown of royal blue with which to deck the steps in a sunny part of the garden. Should the steps run between boundary walls, snow-on-the-mountain and aubrietia, which the West Country cottager calls blue snow-on-the-mountain, together with cerastium, form a trio of quite common plants for the decoration of the sides of the steps.

When the steps are very broad and shallow, there is no better edging for them than violas of all colours. The impression thus obtained of hundreds of these little flowers rising one above the other, as on a show bench, is wonderfully effective. This is especially the case if the violas are allowed to continue along the path, which should have a slight curve at the top of the steps. The violas will grow over the edge of the stones and form a coloured riband along the side of the path.

It would be futile to pretend that such floral paths as are here described are no trouble to maintain ; but surely it is worth while to spend a little time on the decoration of the paved paths which we are continually using as we pursue our way through the garden. EDWARD CAHEN.

THE BIRCHES

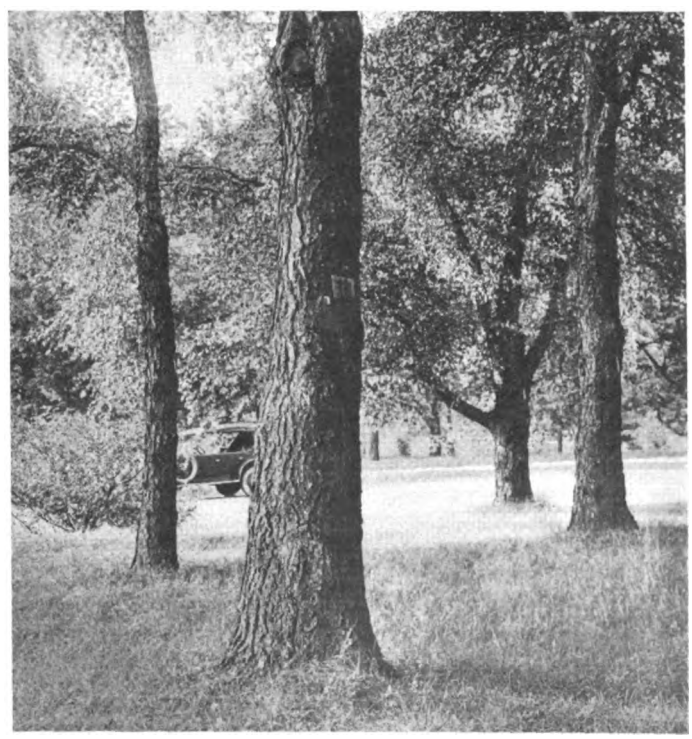
BY E. H. WILSON.

(*Continued from page* 683).

ONE of the most conspicuous and characteristic trees of the mixed forests of northern Korea is B. costata, with white papery bark. It grows from 40ft. to 80ft. tall, and has a trunk from 3ft. to 8ft. in girth, which on old trees is clad with pale grey, loose, scaly bark. The leaves are ovate, long-pointed, sharply toothed, lustrous green, with prominent nerves ; the fruit is erect, stout, barrel-shaped, with long pointed scales. This birch has been much misunderstood and often confused with the black birch of Japan (B. grossa) and with B. Ermani, both very different species. It is doubtful if it ever had been in cultivation until I sent seeds to the Arnold Arboretum in 1918 from Korea. With its polished foliage and rugged trunk it is a decidedly ornamental tree.

Another little-known birch is the Japanese B. corylifolia, with smooth, fine, silvery grey bark, broad ovate to obovate, coarsely toothed leaves with prominent veins, grey on the underside and clothed when young with silky appressed pale grey hairs. The fruit is cylindric, stout and ascending, with very long pointed scales. The leaves, except for their large teeth, suggest those of the European beech, but the important point is that the twigs have an aromatic odour like those of the American sweet birch (B. lenta) ; this is the only birch with white bark that has this peculiarity. This distinct and interesting birch is fairly common on volcanic soils in central and northern Japan, but I have not seen it wild elsewhere. I introduced it in 1914, but it has failed to make itself at home in the Arnold Arboretum.

A lovely birch, abundant on the highest mountains of central China, is B. albosinensis. It is a tree up to 80ft. tall, with a clean trunk, sometimes 10ft. in girth, which grows mixed with other deciduous-leaved trees, though occasionally it forms pure woods. The bark is singularly lovely, being a rich orange-red



BETULA NIGRA, THE RIVER BIRCH.

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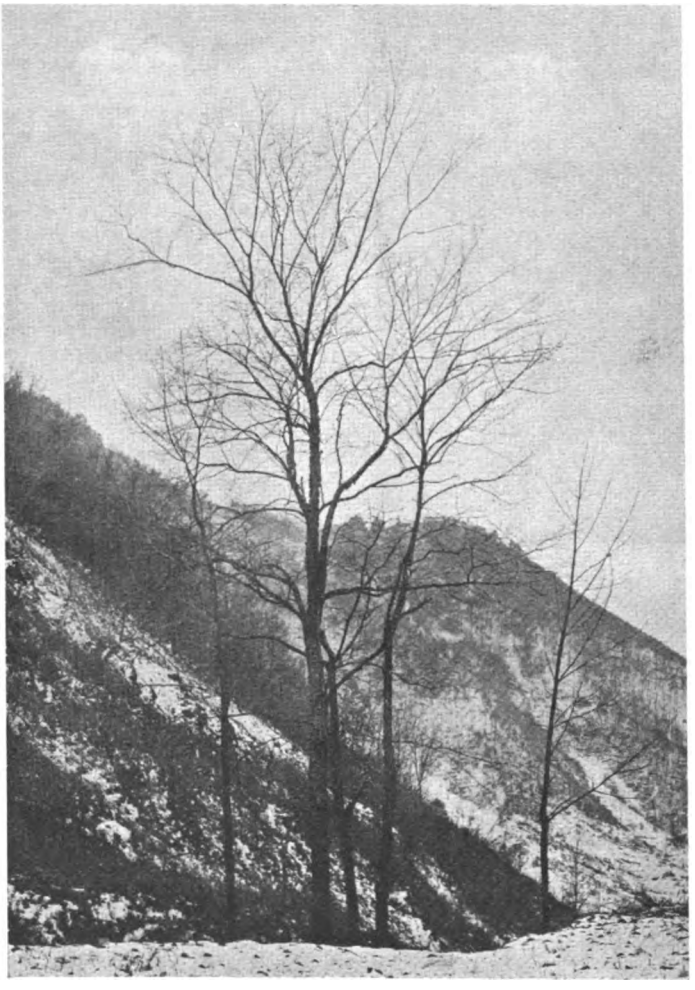
or orange-brown, and peels off in sheets each no thicker than fine tissue paper, and each successive sheet is clothed with a white glaucous bloom. It is in cultivation from seeds I sent from China in 1910. For some unknown reason it has not grown well in the Arnold Arboretum, and I hope better fortune has attended it in British gardens, for it is a most captivating ornamental tree. A presumed variety (septentrionalis) is very common on the mountains of the Chino-Tibetan borderland, where it grows 100ft. tall, with trunks from 12ft. to 15ft. in girth. The bark varies from orange-brown on young trees to orange, orange-yellow or orange-grey on old trees. It exfoliates in thin sheets which persist as shaggy masses on old trunks and branches. The bark lacks the white glaucous bloom of the central China birch, and, in my opinion, it represents another species. It is my Nos. 900 and 900A. Whatever its identity, it is a most worthy tree, and from youth to middle age its smooth polished orange-brown bark is most attractive. The so-called B. utilis var. Prattii, which is growing in gardens under my seed Nos. 976, 990, 4089, 4087, 1138 and 4035, is, I consider, but another condition of this same birch. In the spring of 1909 I saw growing in the Botanic Garden at St. Petersburg a birch with the same characteristic bark, and I am sure it is my friend of the Chino-Tibetan forests. It was called B. utilis, and under this name several writers have referred to it. The authorities at the time could not tell me its origin, but I doubt not that Russian explorers had sent back the seed from the Tibetan marches. The true B. utilis is a Himalayan species introduced into England by Sir Joseph Hooker in 1849, but to this day remains a little-known tree. From what one can learn, it appears to be tender in Britain, and, moreover, there is a confusion with B. Jacquemontii not yet properly unravelled.



THE LOW-LEVEL BIRCH OF CENTRAL CHINA, B. LUMINIFERA.

The common low-level birch of central China is B. luminifera, which, under the name of B. alnoides var. pyrifolia, is growing in England from seeds that I collected. This has a firm, smooth, dark red-brown bark which becomes dull brown or even yellowish-grey on old trees. It is a common tree, rarely 75ft. tall, with a trunk from 3ft. to 8ft. in girth. The foliage varies a great deal in shape and serration, and the clustered catkins are often more than 3ins. long. It has not proved hardy in the Arnold Arboretum, but is growing well at Kew, where it promises to be a useful addition to the arboretum.

The red birch of northern Japan (B. Maximowiczii) has the largest leaves and longest catkins of all known hardy birches. In Hokkaido, where it is at its best, I have seen trees fully 100ft. tall, with a trunk 12ft. in girth and clean of branches for 50ft. and more. But such trees have a roundish, mop-like crown, grey-brown or grey unattractive bark split into long, broad, thin sheets which curl and cling to the tree in shaggy masses. The young vigorous trees are of open habit, with the trunk and principal branches clad with firm, smooth, snow-white bark. Introduced in 1893 into cultivation by Professor Sargent, this birch has proved a hardy, vigorous, quick-growing tree, distinct and markedly handsome.

A semi-aquatic birch and lover of rich alluvial soil is B. nigra, the river birch, abundant in the eastern United States from the Atlantic seaboard to west of the Mississippi River, and found in its greatest size in the lowlands of sub-tropical Florida. It is a large tree from 80ft. to 90ft. tall, with a trunk 15ft. in girth which divides some 10ft. to 20ft. above the ground into from two to several massive diverging limbs. The bark on young trees is shining light reddish brown and separates freely into large, thin papery scales which curl and remain on the tree for many years in shaggy masses. On the trunk of old trees the bark is fissured and broken on the surface into thick, closely appressed scales, dark red-brown in colour. This birch is most strikingly distinct and picturesque in appearance.

(To be continued.)

SUCCESS WITH GARDEN PEONIES

ONE of the most remarkable events in modern horticulture has been what one might well term the discovery of the herbaceous peony. This magnificent flower has been somewhat slow in coming to the fore, but is now firmly established in the affections of every garden enthusiast. After all, it was impossible that so beautiful a flower—perhaps our most beautiful perennial—could be neglected for ever.

In such a country as ours, with its many weather changes, no plant of questionable hardiness can attain widespread popularity, and surely its remarkable constitution must have been an important factor in the peony's rise to fame. "Hardy as a weed" is a term applied to not a few herbaceous plants, but to none can it be applied with more truth than to the peony. Frost, rain and wind seem unable to disturb the equanimity of the plant, and there is no doubt that it can be grown, and grown well, on a greater variety of soils, and in a greater variety of positions, than any other perennial. How much this means to those true flower lovers who, wherever they may be, strive to fashion for themselves a beautiful garden! Few of us are fortunate enough to possess ideal conditions of soil and aspect, but the many who have to plant under difficulties can at least console themselves with the thought that a garden in which peonies refuse to grow is hopeless indeed.

The plant, of course, has a preference, and this is for a good medium loam which has been trenched to a depth of about 2ft. Unless the soil is of exceptional fertility, it is advisable to incorporate with it some well decayed cow manure or leaf-mould as the trenching proceeds, for it must be remembered that the peony when planted should be allowed to remain undisturbed for five or six years. October is generally considered to be the best month for planting, but any time from that month until April is quite suitable, providing always that the weather be mild and the soil in a good, workable condition. With early planting, however, there is a possibility that many of the plants will flower the first summer, but with

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later plantings this is uncertain. In any case, a lot of bloom will not be produced until the second year, as the peony does not establish itself so quickly as fibrous-rooted plants, and takes time to make itself thoroughly at home. A fair amount of room should be allowed between the plants—3ft. to 4ft. will not be too much, for they form large clumps in the course of two or three years. If an immediate effect is desired, the peonies may be planted 2ft. apart, and every alternate plant can be removed after the second or third year. Established plants will appreciate feeding from time to time, and it is a good plan to apply a dressing of well decayed manure each spring, forking it well in around the plants. In default of manure, bone-meal could be used with advantage, applying this at the rate of 4 oz. per square yard.

A strong point in the flower's favour is its suitability for house decoration. Here it need acknowledge no rival but the rose. The many exquisite tints which the art of the hybridist has produced make it possible to find shades which will harmonise with every scheme of interior decoration, and the long, sturdy stems upon which the huge flowers are so gracefully borne make the task of arranging them as easy at it is delightful. Fragrance, too, is not lacking, and it is a curious fact that while the latest varieties of roses and sweet peas seem to have sacrificed much of their scent for additional size and beauty of colouring, the delightful spices and honey perfume of the peony are most evident in some of the choicer sorts.

More important, perhaps, than its adaptability to decorative work is its great value in the garden. It would not be too much to say that not only is it impossible to have too many peonies, but it is also impossible to place them wrongly. There are innumerable ways in which this noble flower can be used. It should be found in gardens large and small, planted in beds and herbaceous borders, and massed boldly in the wild garden and park. Where space permits whole borders may be devoted to the flower with splendid effect. Two broad borders flanking a drive or a spacious grass walk would be a superb sight if planted entirely with peonies in their many beautiful colours. In a very large place it might be possible to form a separate garden for peonies. A little formal garden could be laid out on a stretch of level lawn and enclosed with yew hedge or trellis. Two flagged paths meeting in the middle at a sundial or bird bath would add to its charm, and the whole would form a delightful setting for the beds of peonies. From early spring when the first reddish shoots appeared through the soil, to the autumn, when the foliage assumed brilliant hues of orange, carmine and purple, the garden would never lack colour or interest, and in early summer, with the plants smothered with gorgeous flowers, the spectacle would be magnificent.

Better still, however, would be an informal arrangement of irregularly shaped groups in wood or park. One can imagine a woodland clearing of about a quarter of an acre in extent carpeted with emerald turf, and here and there bold groups of peonies, the tree growth around making an effective back-ground for the exquisite tints of the flowers.

It is possible to plant quite a number of things with the peonies, but while they can be associated very happily with most herbaceous plants, it is better, on the whole, to interplant mainly with bulbous subjects. Early spring colour can be obtained by introducing a few scillas and narcissi among the plants, and for summer and autumn effect such flowers as gladioli, montbretias and Galtonia candicans immediately suggest themselves. Lilies, too, look very well in the peony beds, and some of the best for this purpose would be LL. regale, Brownii, Henryi and pardalinum.

Turning to the question of the best varieties to grow, we realise that the old peonies of the cottage garden—charming as they were—have been rendered obsolete by the wonderful new kinds which have been raised in the past few years. The efforts of the leading nursery firms, particularly that of Messrs. Kelway and Son of Langport, Somerset, have produced some new sorts of great beauty.

The following selection will be found to include some of the finest varieties in commerce:

SINGLE VARIETIES.

E. ST. HILL, one of the largest single peonies, many flowers measuring 8½ins. across. Colour a deep rose pink, shaded white at the edges.

KELWAY'S GORGEOUS, a most brilliant salmon-rose, quite an uncommon colour. The flower is well shaped and the foliage very fine.

NELLIE, one of the finest single varieties in this colour, and very early flowering. Perhaps the largest of the single peonies.

PURE LOVE, very fine. A large pure white.

MAFEKING, bright scarlet-crimson. A very showy variety.

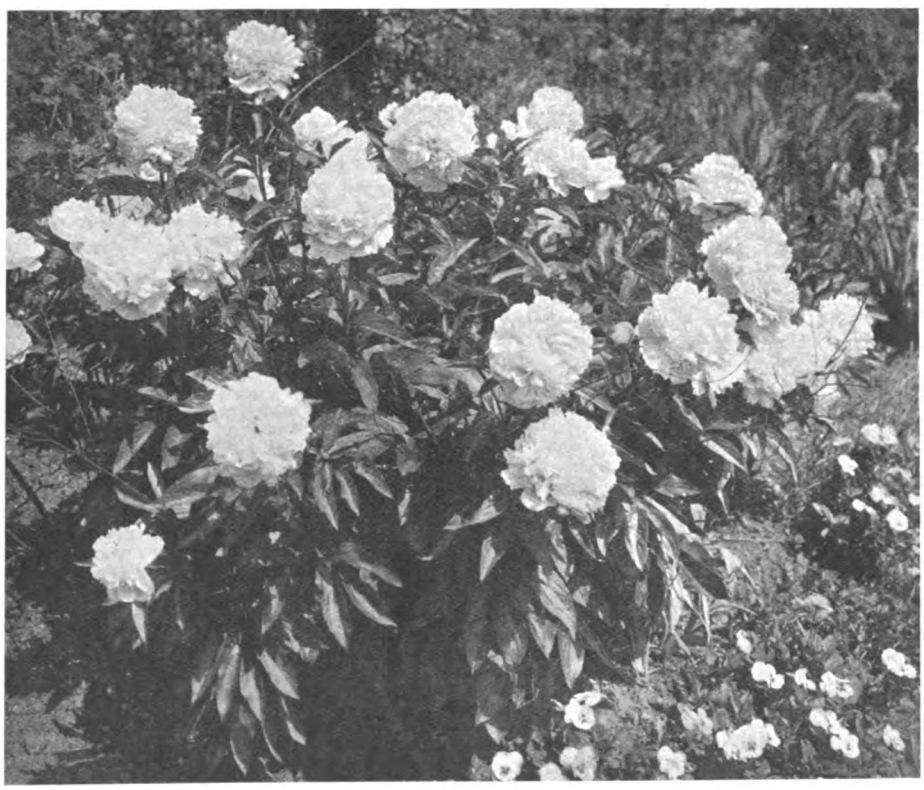
VICTOR HUGO, rich, deep blood-crimson. Fair-sized flowers carried well on stout stems.

KELWAY'S DIANA, a beautifully shaped flower. The colour is a delightful pink flaked with rose.

WILD ROSE, white, speckled all over with pink; unique, and most charming and delicate.

QUEEN ALEXANDRA, a most lovely flower of absolute purity of colouring; like an open water lily. Faultless white petals of perfect form and great size, with a golden heart, beautiful foliage. Early flowering.

LETITIA, beautiful bright rose, lively and effective.



THE GLEAMING WHITE BLOOMS OF KELWAY'S GLORIOUS.

EASTERN BROCADE, white flushed with pink, a "single" flower, rather cactus in shape.

DOUBLE VARIETIES.

MRS. JAMES KELWAY, the finest new double peony, extremely tall and robust. A tinted creamy white and very lovely.

KELWAY'S GLORIOUS, the most wonderful new peony sent out for many years; gleaming white, very full with rosy streaks on the outsides of the guard petals. Very sweetly scented. This variety is rated *second* in the world's list of peonies compiled by the American Peony Society.

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SIR HENRY STONE, rose guard petals, short centre petals tipped and edged with gold. Very free flowering.

LADY ALEXANDRA DUFF, lovely French white—that is to say, not a snow white, although when fully open it is quite white—in the young stage tinted with a very fresh delicate pale shade of what is commonly called blush or palest pink. The back of the flower near the stem is flushed with pink. Tall and robust. Very scarce. One of the grandest varieties ever raised. First-class certificate, R.B.S.

LADY GWENDOLIN CECIL, delicate lavender flesh; a beautiful flower; very late flowering. First-class certificate, R.B.S.

DR. BONAVIA, of a very lively pink colour, paling at the edge of the petals; large flowers, showing golden anthers among the petals. Very sweetly scented.

WAR, large flowers of a dazzling crimson-scarlet, showing golden stamens in the centre. A beautiful variety.

LORD AVEBURY, a magnificent crimson-maroon. Nicely shaped flower held well above the foliage.

LADY CURZON, white guard petals with a bunch of cream-coloured petals in the centre, a faint blush tinge pervading the whole flower. Early flowering, very large and sweetly perfumed. Award of merit, R.H.S.

KELWAY'S DAVID, a most beautiful coral pink. Flowers very large and handsome, and produced well into July. This variety is quite an acquisition.

MRS. LUTWYCHE, pale pink and cream, grand, scented.

PRESIDENT POINCARE, splendid rich pure ruby crimson. A fine dark colour and spice-scented. Well formed incurved flower; semi-double.

NOTES OF THE WEEK

TAMARISK.

THERE seems to be a common impression that the tamarisk (Tamarix gallica) is only suitable for growing along the coast. As a matter of fact, this graceful shrub, with its feathery growth and clouds of pink flowers, may be grown successfully inland. Although the tamarisk grows best on a light sandy soil it will thrive quite well in almost any conditions. One advantage of the tamarisk is its quick growth, and quite small plants will, in a year or two, attain the height of 8ft. to 10ft. The tamarisk is easily propagated by means of cuttings of ripened shoots placed in sand and protected by a bell glass. A few bushes look extremely well mixed with other shrubs, on account of the distinctive growth of the plant. As well, the tamarisk makes a most excellent hedge plant. Strong young plants inserted about 12ins. apart will form a thick hedge almost more quickly than anything else. The shrub bears the constant clipping well and it develops an extremely dense growth. The tamarisk casts its small leaves in the winter, but these are retained until very late in the fall. Some while before the leaves drop they turn a bright orange yellow shade which makes the shrub most attractive in the autumn. By removing side shoots small trees of tamarisks are secured, and these make interesting specimens for the upper parts of a rock garden. —S. LEONARD BASTIN.

OMPHALODES CAPPADOCICA.

NO one who has a woodland garden can afford to overlook the subject of this note when making out their autumn lists. In general garden merit, which includes ease of culture and vigour, it is the best of its genus, flourishing with the freedom of O. verna and rivalling the excellent but fastidious Luciliæ in the large size and dainty elegance of its lovely porcelain blue flowers. In any freely drained, decent loam which does not get too dry, O. cappadocica will eventually spread over a wide area, its ample oval-pointed leaves making a dense carpet of pale green which easily holds its own against weeds. The airy sprays of blossom, rising to some 8ins. above this, are yielded in extraordinary abundance from early spring well into summer, and, as often as not, we get a secondary display in autumn.

O. cappadocica seeds with that moderation that marks its natural progress by offsets, and the seedlings are invariably true, unless you happen to get a hybrid, when the plant's indiscretion is quickly forgotten in the interest that invests the "little stranger." One such incident has occurred here, and, unless I am much mistaken, the lusty bantling which has arrived is a hybrid between the Cappadocian and O. nitida. At any rate, while it suggests a compromise between the two, its flowers are fully as large as those of cappadocica, and rather a deeper blue, yet it retains the narrower, glossier leaf and the single, non-spreading tuft of the other species. O. Luciliæ has had no hand in this business (the slugs have seen to that), and there is nothing in the seedling even to hint at a relationship with verna.—A. T. J.

PERPETUAL MALMAISON CARNATIONS.

MANY growers have, for various reasons, discarded the malmaison carnation, but they should not overlook the comparatively new type which, for want of a better description,

PERPETUAL MALMAISON JESSIE ALLWOOD

we may class as a hybrid between the old malmaison types and the perpetual-flowering. Some varieties of these are almost as free as their perpetual sisters; the flowers are, in general appearance, of the malmaison type, but the point to emphasise is that one can get good blooms almost at any time.

Hugh Low is a beautiful pink of great size and one of the best, but the older Minerva is still well worth growing. Miracle is a decided acquisition of much the same colour, whose flowers are larger than any of the others we grow. Boadicea is noted for the freedom with which it flowers, truly a dependable variety where demands may be frequent and large. Mrs. Myles Kennedy is a new colour, a deep salmon, very effective, delightfully and fully scented. The Hon. Charlotte Knollys is the deepest red we have, the flowers being borne on fine stems. Jessie Allwood must be included on account of its colour, yellow. Mrs. Cott is undoubtedly the most useful white and Lady Nunburnholme a desirable apricot.—HUGH AITKEN.

NOTES FROM NEW JERSEY.

RESPECTING the use of teazles for decorative work, as suggested in THE GARDEN of October 10th, I may mention that here in the United States the florists are making a tremendous use of these odd flower heads, also dock flowers, lotus pods, bulrushes and all kinds of weeds and grasses that will hold up after drying. Numerous firms are specialising in the preparation and mounting of these items, and also pine cones. By clever dyeing and the use of metallic and other paints, these wildings are most gorgeously coloured, and made up for the most part into wreaths and other designs, also table centre-pieces for Christmas use, one or more candles being embodied in the latter.

Touching upon the question of colour charts, may I ask why Ridgway's Colour Chart is not mentioned? This, to our way of thinking, is the only colour chart of any value. It contains well over 1,100 colours; these are not prepared by printing, but are actually hand work. It is generally recognised that colour charts prepared by printing cannot be perfect, because the impressions by machine are always variable. For this reason the French work is not considered worth the price asked. One printing concern doing much colour work has informed me that no printing can be depended upon, and they therefore always recommend the Ridgway chart, which is a large book costing 12dols. By its use one can get an understanding of over 4,000 shades. Many industries use it, although, as your readers probably know, the textile industries have a system of numbers whereby manufacturers the world over can select the right shade without a pattern. One of our gladiolus growers here follows the textile system in his descriptions.

Regarding the wintering of corms and tubers, as discussed on page 574, I cannot agree that it is injurious to lift and cut off the tops of gladioli while green. Over here, scores of thousands of gladioli are grown; at least two firms grow 200 acres, while 10 to 20 acres are common, and all of them start lifting in October, cutting off the tops within 2ins. of the corms; they would never get through harvesting before winter set in if they attempted to keep the tops on. One of the oldest growers, Leonard Joerg, who has been in the game forty or more years, having formerly been with John Lewis Childs, told me that cutting off the tops while green has no injurious effect if the growth is complete, and three years' personal experience proves it to be so.

On the other hand, I do not cut down and dig my dahlias until a really hard frost has cut down the stems; this season we had

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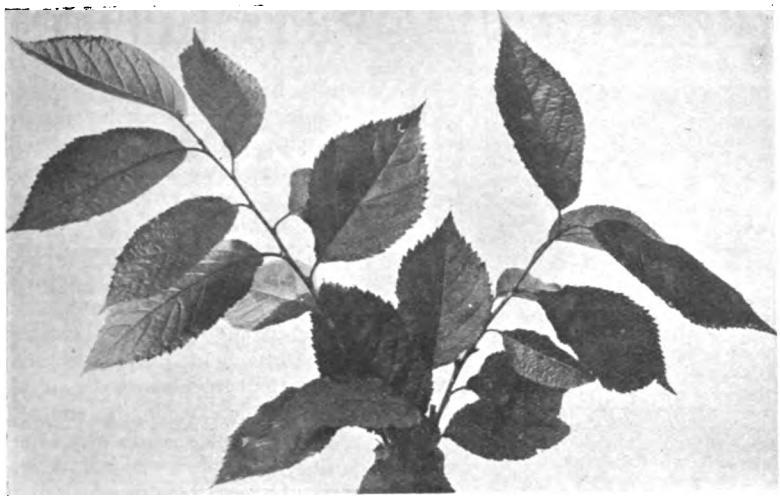


THE FOLIAGE OF PRUNUS PSEUDO-CERASUS, SHOWING COARSE SERRATION.

a frost on October 10th, earlier than usual, which was just severe enough to destroy all flowers and foliage without damaging the stems to any extent. By leaving the plants until thoroughly cut down, the roots will make up considerably, although there is practically no foliage. The same applies to cannas. Montbretias in this section, by the way, have to be treated rather like gladioli, as they are not sufficiently hardy to be a certainty; I lift the bulbs around the end of October and store in peat moss.—T. A. W., *New Jersey, U.S.A.*

ASTER NOVI BELGII VAR. CLIMAX.

THERE are now many choice coloured Michaelmas daisies, and even semi-double flowered varieties have been added further to swell the already numerous lists of good varieties. One kind, however, which I think worthy of special note is that named Climax, one of the Novi Belgii section. It is not so many years since it was classed among the new varieties, and stated to be "the largest-flowered variety in cultivation," but there are others, such as Mother of Pearl, with lilac-pink flowers 2ins. across, in fact this variety would almost pass for a single chrysanthemum. Then King George is another kind with very large flowers.

Two years ago we received a small plant of Aster Climax, and early in November of last year a few of the growths were taken from the plant and inserted round the sides of a pot containing medium fine sandy soil, and the pot set in a close frame. By February the cuttings were splendidly rooted, and later planted out in the open border. The borders had been well trenched and manured some time previous to the planting; it is not surprising, therefore, that the plants grew apace and reached the height of 5ft., being healthy and vigorous, and at the date of writing, November 7th, they are adorned with numerous large bluish-heliotrope flowers with yellow centres. The foliage, too, is clean and glossy green, furnishing the stems almost to the ground level. Aster Climax should be included in all collections, as it is "the finest single aster." The colour is charming, and to me certainly more so after the flowers have been expanded for two or three days.—DAVID ARMSTRONG.

PRUNUS PSEUDO-CERASUS, LINDL.

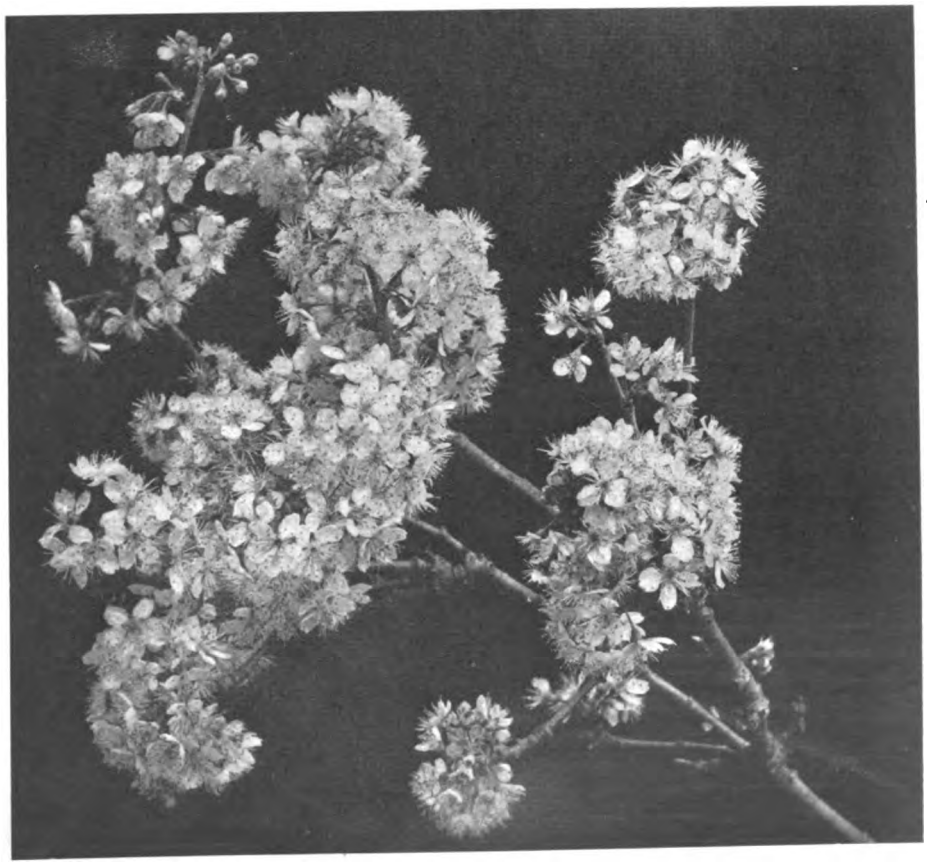
ITS habit of flowering in the open during the early part of February, makes this a very useful plant. It is also a very interesting one, because it is so little known; but this is not to be wondered at, for up to the last few years it was not thought to be in cultivation. Although I believe it has recently been put on the market from material taken from the specimen here, I think I am quite safe in saying the plant here is unique, in being the only specimen of any size in the country. The inflorescences, which are in clusters of from six to twelve, consist of short racemes, or corymbs of from five to eight flowers, which are ruddy red in the bud stage, being pale pink when open, the two together giving the shrub a very telling effect. The bracts are small and jagged, those of the upper flowers being smaller. The stalk and calyces are of a ruddy red, the stalks hairy, and the calyx tube glandular. The petals, which are two-fifths of an inch long and a quarter of an inch wide, have a double notch at the tip, with always one tooth and sometimes more than one between the two notches.

This species is sometimes confused with Prunus serrulata, many of the double forms of that species being referred to this interesting and distinct cherry, but there are wide differences. P. Pseudo-cerasus always flowers in February. P. serrulata and its varieties in April and May. In P. Pseudo-cerasus the leaves and flower stalks are hairy, while in P. serrulata they are glabrous. The leaf blades, which, as I have already said, are hairy, are more or less obovate, rather broadly acuminate, the edge being coarsely doubly serrate, whereas the leaf blade of P. serrulata is ovate, glabrous on both sides, with a long, tapering point, the serration much finer and not double, the leaf stalk being from 1in. to 1½ins. in length and glabrous, while the leaf stalks of P. Pseudo-cerasus are about ½in. long and hairy. The leaves of P. Pseudo-cerasus remain on the tree quite late in the autumn, being quite green, when those of P. serrulata are yellow and falling.

Flowering as I have already said, early in February, makes it a very valuable ornamental shrub; of course, there is always the risk of the flowers being damaged by frost, but even then should the frost be not too severe and long, the later buds will sometimes open and give a good display.

The specimen here is 15ft. high and 21ft. through, and nothing can be more beautiful during a spell of mild weather in February than this plant covered with its masses of flowers and buds. Even if the flowers are destroyed several years in succession, it is well worth growing for the one season it does escape, while it might be quite a useful plant for pot work for decorating the conservatory.

It is a native of China and appears to have been introduced into this country about 1819. It was described by Lindley in "The Transactions of the Horticultural Society," Vol. VI, in 1826, while either this or a very similar plant was figured in the "Botanical Register," tab. 800, under the name of P. paniculata, in 1824.—F. G. PRESTON, *Botanic Garden, Cambridge.*



PRUNUS PSEUDO-CERASUS FLOWERING IN FEBRUARY.

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THE LATE MR. W. R. DYKES: AN APPRECIATION

IT is a sad task to have to announce the death of Mr. William Rickatson Dykes, the secretary of the Royal Horticultural Society, who died on Tuesday, December 1st, as the result of a motor accident which occurred near Woking on Friday, November 27th.

Mr. Dykes was born in 1877, and was educated at the City of London School, at Wadham College, Oxford, and at the Sorbonne in Paris. He was a master at Charterhouse for sixteen years. In 1920 he was appointed secretary of the Royal Horticultural Society on the retirement of the Rev. W. Wilks.

Although many will remember him as the foremost authority of his day on the genus iris, yet to most horticulturists his memory will remain green as the energetic secretary of the premier horticultural society of the world. In this work his energies were unflagging. He took on the secretaryship at a time when post-war gardening had just started on its victorious career, for the popularity of gardening is increasing by leaps and bounds, and his labours had much to do with the extraordinary increase of membership in the R.H.S., which now stands at over 23,000.

THE LATE MR. W. R. DYKES, M.A., L.-ès-L., V.M.H.

His death is a sad loss to all who knew him. His post was no sinecure, and he performed all his hundred and one duties with a calm energy and a strength of purpose that has done more towards making the R.H.S. the great society it is than many people imagine. We on the staff of THE GARDEN had frequent occasion to ask his help and advice, and never asked in vain. He had an extraordinary capacity for detail in anything in which he was interested, as noticeable in his work at Vincent Square as in his investigations into irises, tulips and crocus. Unlike many investigators, he was both scientific and practical, and he knew his plants not only as herbarium specimens, but also as denizens of the garden.

All readers of THE GARDEN will join with us in expressing our sympathy with Mrs. Dykes over her sad loss. A memorial service, which was attended by many of his colleagues on the Council of the R.H.S. and many Fellows, was held on Friday last at St. Stephen's Church, Westminster.

With the popularity of gardening has grown up almost hand in hand that of the iris, and it is due to the pioneers like Sir Michael Foster and the late Mr. Dykes that the genus has attained its present high standing. His labours have not been in vain, and his name will for ever be closely associated with the *fleur de luce* and the many fine forms and varieties which he has presented to the horticultural world.

In all sections of the genus the influence of his hand is to be found. He worked hard for some considerable time at the Apogon irises, crossing them not only with one another, but also with the bearded kinds. Among the pallida varieties he effected great improvements, and the one which is illustrated here was one of his brightest and best seedlings among the pink pallida varieties. It is a tall and shapely variety with just that tinge of delicate violet pink which gives to it a considerable charm. It is, indeed, a gift of which the iris world may well be proud. Sapphire is another of his introductions, and is so well known among iris lovers that its description would seem superfluous. Another exceedingly fine variety which he raised in 1921 is Ariadne. A charming little pallida hybrid which we also owe to his labours is Aquamarine, whose distinct blue tones are so often seen in happy combination with his Sapphire.

As an indication of the extent and period of his labours we would draw attention to the variety Goldcrest, which he raised as far back as 1914. The flowers of a bright violet blue with a golden beard have captured the hearts of all lovers of flowers. In the same year he presented the iris world with yet another fascinating variety in Richard II, which still remains one of our most prolific kinds. After the war years his additions to the genus became numerous, not only in the production of fine garden varieties, but also in the addition of not a few species, including the aristocratic Iris Hoogeana from Turkestan. His extensive list of introductions to the iris family is, indeed, an imposing one, and the result of years of patient study and research.

THE TALL AND HANDSOME APHRODITE. One of Mr. Dykes' notable introductions to the Iris World.

His work on the genus did not finish with the growing of the plants. He has left to the gardening world contributions to literature which, like many of his varieties, will remain as the standard works for a number of years. His first volume on irises was a small one published in the Present-Day Gardening Series in 1911. This was followed by his great work in the form of an admirable scientific monograph on "The Genus Iris," which is now recognised as the standard work on the family throughout the world. Last year "A Handbook

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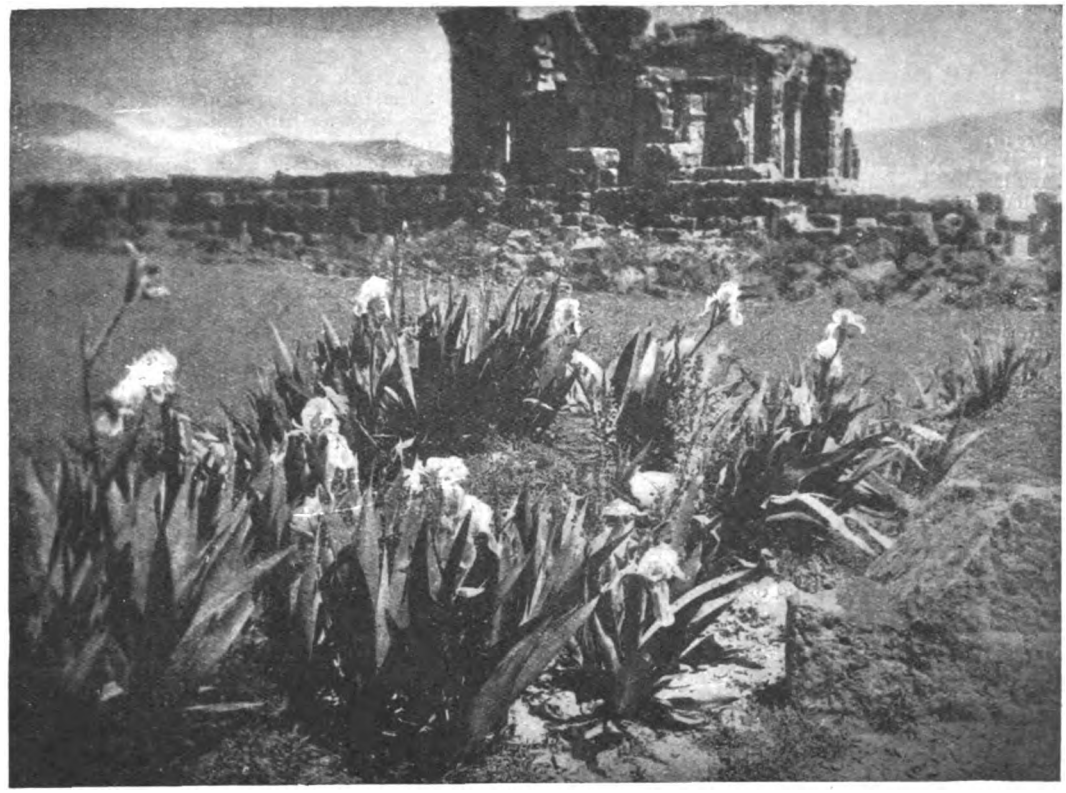

of Garden Irises" came from his pen, and already the value of this volume has been widely recognised by all gardeners, filled as it is with many practical hints on the culture of the iris, the outcome of his many years' experience with the flower. From the foregoing it might appear that his efforts and attentions were all centred on the iris, but this was not so. His outlook was wide and his interests catholic. In recent years he devoted much of his time to the genera tulip and crocus, and had he lived there is no doubt that the gardening world would have benefited greatly by his painstaking research and wide knowledge. In other branches of horticulture he was equally versatile, combining to a marked degree theoretical and scientific knowledge with a rare intuition of the requirements of the practical man.

For his untiring efforts in all branches of gardening, and more especially to those which have transformed the iris from the mere "flag" of a generation ago into a flower beloved of all gardeners, all horticulturists owe to him a debt of gratitude that can never be repaid.

WE GLIDED WINDING UNDER RANKS OF IRIS AND THE GOLDEN REED.

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DECEMBER AT VINCENT SQUARE

THAT the season has almost reached its ebb was very much apparent on the occasion of the second last Fortnightly Meeting of this year of the Royal Horticultural Society at Vincent Square on December 1st last. The exhibits were decidedly miscellaneous in character, the exhibits of garden sundries being a prominent feature. The floral groups of chrysanthemums, carnations, begonias and orchids, which were all good considering the time of year and the hard weather conditions, lent a touch of colour to the Hall, together with the paintings and drawings of the many artists who were exhibiting. The various stands devoted to sundries merit the attention of all who attend the shows at this period of the year. Much useful information may be garnered which will stand one in good stead in the coming months.

Two good chrysanthemum exhibits were staged, one by Messrs. Keith Luxford and Co. and the other by Mr. A. G. Vinten. In both cases the single varieties were particularly fine and well grown. The stand of Messrs. Keith Luxford was large and in a good position. The back was decorated with bold pillars of Japanese varieties, such as Julia, a fine rosy bronze sport of Mrs. B. Carpenter; Thomas W. Pockett, with large well formed flowers of silvery pink; and the amber-coloured variety, Majestic. Some good new singles, such as Envy, Everbright and Criterion, were also noted. The strange coloured Mme. E. Roger, with its greenish shaded florets, stood out from among the reds and yellows; and Caleb Cox was a golden bronze anemone-centred single. The fine chrysanthemums shown by Mr. A. G. Vinten were not seen to the best advantage, owing to the poor position which his stand occupied. Balcombe Beauty, a beautiful golden yellow sport of December Bronze, was most attractive; and Ada Brooker was a striking incurved variety. Miss Joyce Moore, one of the largest and best crimson singles; Nona, a pure white borne on stiff stems; Mrs. W. E. Catlow, a good yellow single; Mrs. A. Robertson, a clear pink; and Challenger, a chestnut red single with a gold disc round the eye, were some of the best. Messrs. Sutton and Sons had an interesting exhibit, which consisted of seedling chrysanthemums in a variety of colours. The seeds of these were sown during February last and were grown on without staking, stopping or disbudding. Some of the colours were excellent, particularly the gold and bronze shades.

Several fine groups of carnations were staged. Messrs. Stuart Low exhibited a large collection of perfect blooms. Lady Hindlip, Winsome, Sir Philip Sassoon and Sheila Greer were outstanding. Two novelties were Lady Nall-Cain and Sybil. An attractive new variety named Nero was shown by Mr. C. Engelmann. Betty Loo, Red Peerless, Red Laddie, Saffron and Improved Ward, shown by this raiser, were also in good form. Messrs. Allwood Brothers had a representative collection of perpetuals, including such varieties as Laddie, Chintz, Master Michael Stoop, Wivelsfield Claret and Topsy.

Fruit, in the form of apples, was shown by Messrs. G. Bunyard and Messrs. Laxton Brothers. Mr. G. Whitelegg showed shrubs and alpines; Mr. John Klinkert, topiary trees; and Messrs. L. R. Russell and Co. staged a large and imposing group of foliage plants of all kinds. Hardy plants were shown by the Misses K. and E. Hopkins; and St. Brigid anemones by Messrs. Reamsbottom and Co. Good orchid exhibits were staged by a number of firms, including Messrs. Black and Flory, Cowan, H. B. Brand, H. Dixon, J. Cypher, H. T. Pitt, Sander and Co..

In conjunction with the above meeting of the R.H.S., the British Carnation Society held its winter show. Although it was quite a small show, so far as the competitive classes were concerned, the quality of the blooms was particularly good. The enthusiasts were especially interested in the splendid seedlings which have been raised by Messrs. W. E. Wallace and Son in their well known nurseries. Not only were there many blooms of superb quality, but this was enhanced by the artistic method of arrangement. We were especially impressed by The Favourite, a beautiful soft pink variety; Enid, a rounded rich crimson bloom; Our Prince, a glowing scarlet; and Spectrum, a large flower with regularly fimbriated margins and of bright crimson colour.

In the competitive classes the principal prizes were won by Mr. Jas. Humphrey, who showed magnificent flowers. Sir Chas. Nall-Cain, Bt., won several prizes with nearly as good blooms, and Mr. R. Chetwynd-Stapleton also staged very good blooms.

Judging from the show, the best varieties for winter blooming are Crystal White and White Pearl; Betty Low and Headland's Beauty, bright rose pink; Laddie and Lady Northcliffe, salmon pink; Tarzan and Edward Allwood, scarlet; Topsy, crimson; and Violet Mond, bright purple. The best fancy carnation was Benora.

Unfortunately there was only one collection of carnations in the competitive and although Mr. Jas. Humphrey had an excellent exhibit, one would have liked to have seen more shown in this valuable manner. The varieties so tastefully displayed were chiefly Spectrum, of vivid colour; Lord Lambourne, which the raisers are justified in describing as a gorgeous scarlet; Mrs. Hamilton Fellows, deep purple; and Crystal White. Although there was no yellow variety in these competitive classes elsewhere, the huge vases of Saffron indicated that it cannot be very difficult to produce blooms of this rich yellow during the winter months.

NEW AND RARE PLANTS.

ASPARAGUS PLUMOSUS BOUNDII.—This highly decorative greenhouse asparagus is a more compact variety of the well known A. plumosus nanus, and has a distinctly fern-like appearance. The plants on view indicated a prolific habit and it should be a valuable variety, both as a pot plant and for supplying cut sprays for decorative purposes. Award of merit. Shown by Messrs. Bound and Son.

PAVETTA ABYSSINICA.—A quite appropriate description would be short-stemmed corymbs of waxy white ixora-like flowers set on the side branches of a viburnum. It is a hothouse shrub which at Kew has become nearly 20ft. high and, as the specific name indicates, is a native of Abyssinia. The filaments of the starry flowers are unusual, but there does not seem to be any perfume. Award of merit. Shown by the Director, Royal Gardens, Kew.

CARNATION LADY HINDLIP.—This is a large and handsome fancy variety. The well formed blooms are regularly lined with deep rose on white ground and are pleasantly scented. Award of merit of the British Carnation Society. Shown by Messrs. Stuart Low and Co.

ORCHIDS.

AWARDS OF MERIT.

ODONTOGLOSSUM ROBIN HOOD (Mars illustrissimum).—This hybrid is noteworthy on account of its intense crimson-red colour, which is solidly displayed on all the segments, with the exception of a narrow white border line. The spike bore six flowers of medium size. Shown by Mr. Robert Gerrish, Milford Manor, Salisbury.

VUYLSTEKEARA LUTETIA (Vuylstekeara Brewii × Odontoglossum luridum).—A promising novelty with a couple of flowers in which the labellum is developed as in Miltonia vexillaria, being large, and of blood red colour at the base, purplish on the apical half, the middle area rose-tinted and much spotted with reddish crimson. The sepals and petals are flushed with crimson red. The generic name Vuylstekeara denotes a hybrid combining the genera cochlioda, odontoglossum and miltonia. Shown by Messrs. Charlesworth and Co., Haywards Heath, Sussex.

CYPRIPEDIUM LOCARNO (Albert Fisher × Christopher var. Grand Duke Nicholas).—A large flower composed of broadly developed segments, the dorsal sepal having a greenish base, marked with light purplish spotting which extends over the white upper portion. The ventral sepal is almost of equal size and similarly marked. The petals yellowish, stained with brown, the labellum broadly developed and of dark brown colour. Shown by Messrs. Black and Flory, Slough.

NEW CHRYSANTHEMUMS.

The four following varieties received the first-class certificate of the National Chrysanthemum Society on November 30th, and the award of merit of the Royal Horticultural Society on December 1st.

BELLE CHINOISE.—A very beautiful exhibition Japanese bloom of perfect form. The narrow drooping florets are of bright yellow colour. Shown by Messrs. Keith Luxford and Co.

DELICATA.—A medium-sized Japanese variety of reflexing type. The colour is a delicate mauve which is rather paler in the centre of the bloom. Shown by Mr. H. Shoesmith, Junr.

PINK PRIZE.—This is a small Japanese variety with broad florets of deep pink colour. Shown by Mr. H. W. Thorpe.

RUBY RAY.—A most brilliantly coloured small single. The florets are broad and substantial and of rich velvety crimson colour. Shown by Mr. H. W. Thorpe.

The two following received the N.C.S. first-class certificate.

JEWEL.—A decorative variety of good size and made up of narrow, pointed reflexing florets. The light chestnut colour and golden reverse make it an especially valuable variety for decorative purposes. Shown by Mr. H. Shoesmith, Junr.

JOHN LINGWOOD.—A beautifully formed single of rather more than medium size. It has broad, blunt florets of rich yellow colour. Shown by Mr. E. J. Henderson.

ENDIVE.

MAY not one of the reasons why so few grow endive be attributed to prejudice against a most useful salad plant? I cannot conceive of any other explanation. Outside large establishments, scarcely one in ten attempts its culture, yet it needs practically identical treatment to that of lettuce with additional time for blanching. Presenting a small basket of lettuce to a friend last summer, I included a couple of green curled endive for the salad bowl with other things. It was pronounced as "very nice," though it was the first time it had been used. Lettuce is, of course, the base of a really good salad, and endive cannot well be left out.—W. F.

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CYMBIDIUMS FOR AMATEURS

BY GURNEY WILSON.

IF we enquire why so much interest has been taken during recent years in the cymbidium genus, it will be found that, with the possible exception of cypripediums, no plants are more easily cultivated or produce a finer display of bloom.

Concerning the various species from which the present-day hybrid cymbidiums have been produced, there are a few which stand out prominently in the records. Cymbidium eburneum may be taken first. Its owes its specific name to the ivory white nature of its elegant flowers, a character that has been perpetuated in most beautiful style. While it is true that this species rarely produces more than two or three flowers on each spike, this number is greatly increased in nearly all of its hybrids. Another cymbidium that was very popular in the older collections is C. Lowianum, with its arching spike of about twenty flowers, greenish yellow, and with a prominent V-shaped blotch of red-crimson on the lip. The hybrid known as C. eburneo-Lowianum, combining the principal characters of the two above-mentioned species, enjoyed much popularity for a considerable period, but at last had to give place to the newer race of hybrids now to be described.

The reintroduction of Cymbidium insigne about twenty-five years ago afforded the means of producing one of the most beautiful series of hybrids that has as yet been seen in any genus of the orchid family. The free-growing habit of this species and its tall spikes of rose-tinted flowers effected marvellous changes in the type of cymbidium formerly cultivated. The first flowering of C. Alexanderi (insigne × eburneo-Lowianum) was an immediate success, for its elegantly formed flowers of varying rose tints provided a welcome change from the somewhat sombre colours of such species as C. Lowianum, C. grandiflorum and C. Tracyanum. One cannot attempt to name even a proportion of the numerous hybrids that have recently been produced through the use of C. insigne, either as a seed-bearer or as the pollen parent. Even plants raised from the same seed-pod show considerable variation one from another, while the range of coloration which can be obtained by selection may be said to commence with pure white, passing through shades of cream and yellow to even golden yellow, and also through blush-tinted flowers to those of the deepest rose. In addition, there are now many kinds whose flowers are of bronze tints as elegant as they are difficult to describe. To put the whole matter as briefly as possible: C. insigne has produced a greater number of beautiful hybrids than any other species of the genus. Hence we understand why in many gardens the whole area of a greenhouse is given over to the cultivation of cymbidiums. The principal reason why cymbidiums are eminently suitable for cultivation by amateurs is that they belong to the cool-house section of orchids, or, in other words, the house in which they are contained should not have a lower winter temperature than 45°. On frosty nights a slightly lower figure will probably occur, but it will do no harm so long as it does not continue for any prolonged period. But if we desire to obtain the finest results, something more than merely keeping the plants alive must be done. The warmth of the sun is just as important to the well-being of cymbidiums as to the majority of other orchids, and on that account the early morning and afternoon sunshine is very beneficial, but shading must be afforded on all occasions when there is a danger of the foliage being scorched. No precise directions can be given, for the conditions vary so much with respect to the position of the greenhouse and the locality. Vigorous growth and satisfactory flower-spikes only result from suitable atmospheric conditions, and it should be the aim of the cultivator to produce them as frequently as the outside weather conditions permit. If there is one thing that cymbidiums seem to dislike, it is being shut up in a stuffy atmosphere. A light, buoyant atmosphere kept moist by occasional syringing of the path and under the staging should be within the means of every amateur to maintain. The plants themselves should never be dried off, only during the few weeks following the flowering season will they need slightly less water, for it is then that the growth is less active. On the other hand, the plants must not be overwatered, or the compost will soon become a sodden mass and lead to the decay of the roots. During the growing season light spraying of the foliage on all bright mornings is beneficial. This will prove especially useful during the summer months in keeping down thrip attacks, but it will generally be found that periodical spraying with an insecticide is necessary.

Cymbidiums are generally treated as of terrestrial habit, and this means that they will thrive well in a mixture of turfy loam rendered fibrous by the addition of about one-fifth of peat and a similar proportion of sphagnum moss. Some cultivators advise the inclusion of half-decayed leaves. In order to produce a porous compost, it is as well to include some crushed crocks or coarse sand. The best time to re-pot cymbidiums is soon after their flowering season. The majority will need attention annually, but it is not advisable to remove all the old compost from the larger specimens, and some of these may go for much longer periods without any harm. While care is necessary to ensure that the plants are not starved by being kept in too small a size of pot, it is equally important that they should not be surrounded by more compost than they can make use of. There should be ample room for the new growth to form itself into a bulb of satisfacory size. On the completion of this growth the pot should be fairly well filled with roots, for experience shows that pot-bound plants generally yield the finest flower-spikes.

CYMBIDIUM MIRANDA VAR. BRONZE BEAUTY.

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CORRESPONDENCE

THE BOMAREAS.

SIR,—In his interesting note on the new hybrid bomareas raised at Glasgow, Mr. E. H. Banks rightly states that these beautiful climbers are not sufficiently known. He is, however, mistaken in saying that only five species are now in cultivation. Besides those mentioned should be included B. multiflora from Colombia, a beautifully spotted red and yellow species, and B. Wercklei, a native of Costa Rica with bright red flowers. These two species succeed admirably outdoors in West Somerset, where they make annual growths at least 12ft. in length, each terminated by a large cluster of very striking flowers. They appreciate the support and shelter of other plants through which they climb. In a severe winter all the shoots are liable to be killed to ground level, but in a mild season (such as 1924–25) the foliage remains undamaged and flowers open as early as April. In fact, B. multiflora has flowered steadily here from the middle of April up to the end of November this year. Moreover, it is carrying quantities of fruit containing ripe seed. B. Wercklei has also ripened seeds in a neighbour's garden and young plants have been raised from these. I have little doubt that other species of bomarea would prove equally successful in favoured districts. In addition to the species mentioned above and by Mr. Banks, the Kew Hand List of Tender Monocotyledons (1915) mentions B. frondea (Colombia), B. Salsilla (Chile), B. Shuttleworthii and B. Williamsiæ (both from Colombia), as well as a hybrid B. Caldasiana ×hirtella. B. oculata is sometimes offered by nurserymen, but this is a synonym of B. Salsilla.—N. G. HADDEN, *Porlock*.

WINTER THUNDERSTORMS.

SIR,—In December last an appeal was made through the Press for information regarding thunderstorms occurring in the British Isles between January 1st and March 31st, 1925. I should like to thank the large number of observers who sent reports. The number of days on which thunder or lightning was reported was as follows:

1925.	*Eng. & Wales.*	*Scotl'd.*	*Irel'd.*	*Brit. Isles.*
January ..	10	12	10	17
February .	20	10	8	23
March ..	16	5	4	17
T'tl (3 mos.)	46	27	22	57

There was a large area in Wales and another in the northern counties of England which were free from storms: also a belt stretching from east Yorkshire to south-east Wiltshire. The stormiest areas in England were mainly on or near the south coast: the southern parts of Sussex and Surrey were very pronounced. In Scotland the storms occurred mainly in the central portion of the west coast.

The investigation will be continued during the coming winter.—S. MORRIS BOWER, *Langley Terrace, Oakes, Huddersfield.*

MOVING SHRUBS.

SIR,—Most shrub lovers find it very hard to prune back severely a shrub which has been the glory of the garden for weeks, but in their hearts they know it must be done and would like to be backed by experienced fellow shrub lovers. There is another point which would be interesting to know, that is, which shrubs bear moving well and which do not.

Mr. Osgood McKenzie, whose knowledge of shrubs was hard to beat, and who spent a week here with me the year before he died, said, "Don't forget that rhododendrons love carriage exercise; you need have no fear of moving any of them, no matter what the size," and recently I read your Editorial on "The Disturbance of Plants," where you quote Sir Isaac Bayley Balfour as saying, "theoretically the best way to grow a rhododendron is to sow the seed in the exact place where you hope to see the plant reach maturity"! May I suggest that readers of THE GARDEN be asked to write their own experiences, successful *and otherwise*, of individual shrubs. As this garden was, when we bought it in 1910, a rocky island in Bantry Bay, where no cultivation beyond two or three small patches of potatoes had ever been carried out, and where to make gardens possible rocks had to be blasted in every direction to enlarge the existing small earth pockets, shrubs have had to be moved over and over again, and gardening has all been experimental but intensely interesting. Shelters everywhere had to be planted and the ground prodded to find if it was possible to plant, and in the process of waiting for the protection to grow up many precious plants were, of course lost; but that is the lot of the gardener and the way experience is bought and, incidentally, interest increased.

Speaking of shelter plantations, we found Cupressus macrocarpa, Pinus Laricio and P. insignis the best shelter trees. Before we realised the necessity of topping the insignis we lost several, which in ten years had grown to be trees of 40ft. in height and of very large girth. All the trees planted by us were 3ft. and under. Cupressus macrocarpa planted in 1913 are now over 50ft. and make magnificent shelter. Pinus Laricio we found stood the wind much better than P. sylvestris (I prefer the simple name of Scots pine; it seems to suit it!), though neither of them, needless to say, have achieved anything like the size of the macrocarpa or insignis. The Douglas fir has reached 30ft. in the time, but only where it has had good shelter. They lose their leaders and get bare on the windward side. It seems to me it is never too late to start planting, though few can hope to see their beloved trees reach their zenith.—MRS. ANNAN BRYCE, *Glengarriff, Co. Cork.*

THE HEATH GARDEN AT GLENGARRIFF.

SAGE, SALVIA OFFICINALIS.

SIR,—With reference to W. Oswald Waits' enquiry, "Red Sage," the following is from Loudon's Encyclopædia, attributed to Abercrombie: "The Red is the principal sort in culinary use, having the most agreeable and fullest flavour. The green is next in estimation with the cook. But the small leaved is generally preferred to those to eat as a raw herb, and for decoctions, while the broad-leaved balsamic species is the most efficacious in a medical way, and is also a Tea herb, however any of the sorts may be occasionally used for those alternate purposes."—E. YOUNG, *Herts.*

SIR,—Another query arises concerning this plant out of the enquiry made by a correspondent on page 663 of THE GARDEN. Did the writer in the *Spectator* mean the red flowering sage or the sage bearing the reddish purple foliage of the garden variety or common sage? The latter is occasionally seen in old gardens, its foliage assuming the above colour—not always very pronounced—as the season advances. The suspicion of reddish tint noticeable in the foliage being enough, no doubt, to ensure the term red being loosely applied by folk of other days.

On the other hand, if it be a red-flowered variety which is wanted, Mr. Robinson in "The English Flower Garden," tells us there is a scarce French form of the wild sage (Salvia pratensis), bearing deep, pure red spikes, and one might hazard, if this variety is not obtainable from an English nurseryman, it could be got through the latter for anyone.

An old gardening dictionary I possess mentions a red sage with variegated leaves; and also one called red sage, but no reference is given whether the latter red means flowers or foliage. In Messrs. Heath and Heather's (of St. Albans) list of medicinal plants, red sage is recorded, so perhaps that firm could supply information, if not the plants.—C. TURNER, *Ampthill.*

LINUM MONOGYNUM.

SIR,—The description given of a white-flowered linum by Mr. T. Ashton Lofthouse exactly fits L. monogynum, and I know the late E. C. Buxton had several plants of that species from me. This flax is, as your correspondent suggests, a very beautiful one and I have found it to be absolutely hardy, long lived and not at all fastidious, doing in almost any soil in sun or part shade. The glaucous foliage is distinct and attractive even in winter, and the large, pure white flowers are yielded in an unbroken succession throughout the summer. L. monogynum, moreover, sets seed abundantly and this germinates in the open ground. It is a New Zealand species.—A. T. JOHNSON, *N. Wales.*

HABIT OF VIOLAS.

SIR,—I am pleased to reply to your correspondent who desires to know the names and descriptions of a few violas of close-growing, neat habit, for edging purposes.

Violas that are useful and suitable for bedding are not necessarily good for edging purposes. Their growth, though tufted in character, may be too robust, making tufts

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that are somewhat too loosely formed to make a really satisfactory edging.

Some varieties have a very dwarf and close-growing habit, the plants forming cushions of growth only 3ins. or 4ins. in height, while others, though by no means straggling in growth, are not so short-jointed and consequently are not so neat growing.

Then there are the violettas or miniature violas. Practically all these are suitable for edging. There are not many distinct varieties in commerce yet, however. The species gracilis and cornuta and garden hybrids and varieties thereof are useful for edging, although the cornuta type are inclined to get somewhat leggy as the season advances.

The following varieties can be recommended for their compact and short-jointed growth :—

White.—Seagull, rayless pure white. Peace, creamy white tinted blush. Violetta, the original of the violetta type. Purity, a robust growing violetta.

Yellow.—Ardwell Gem, an old, well tried variety of creeping growth, golden yellow, lightly rayed. Redbraes Yellow, rayless golden yellow. Goldfinch, similar in all respects to Ardwell Gem, from which it is a sport, except that it is edged with lilac—a very useful sort.

Mauve and Blue.—Dunbryan, rayless, pale lilac mauve. W. H. Woodgate, lavender blue, a very effective colour. Newton Mauve, violet mauve. John Quarton, lavender mauve. Violetta Eileen, dark bluish mauve. Violetta Queen of the Year, china blue.

Purple.—J. B. Riding, an old variety purplish mauve, very compact. Councillor Waters, dark purplish blue. Dr. MacFarlane, purple and lavender bicolor.

Bronze.—Redbraes Bronze, mahogany brown. President, bronzy purple, grows tall as the season advances, however.

The nature of the soil in different localities and other conditions will, of course, cause some sorts to vary accordingly. The above list does not pretend to be in any way exhaustive, but comprises a few varieties that have been used and found suitable for the purpose mentioned.—HOWARD H. CRANE.

POLYANTHA POMPON ROSES.

SIR,—In THE GARDEN for October 17th there is an interesting article on "Polyantha Pompon Roses," by "White Lady." These roses are great favourites of mine, and while I quite agree with "White Lady's" remarks as to their general lack of scent, I cannot understand why she does not mention the dwarf polyantha Eugénie Lamesch in any way. I have had a bed of this charming polyantha for years, and it is of dwarf habit and a splendid and continuous flowerer. Its great charm is its scent, which is quite a strong one, and similar to that of violets. When the plants are in full bloom the air is filled with their fragrance at some distance from the bed.—M. L. B., *Ryton-on-Dunsmore.*

NERINES: A QUESTION TO GROWERS.

SIR,—I have been closely watching the pages of THE GARDEN during the past two months on the look-out for tidings of this season's flowering, but in vain. Even the Rev. Joseph Jacob, high priest at the nerine's glittering shrine, has failed to tell of his annual festival of blossom. So, to start the theme, from my own small personal experience I record the fact that my bulbs have behaved somewhat strangely this year.

As a rule, the bud spikes first appear, only a few blades surrounding the opened blooms, while the main display of foliage follows as the umbel withers. This season only about one-half of the flowering bulbs observed the wonted routine, and I duly deplored my failure in percentage of blooms. Subsequently the "grass" rose in strength and during the latter part of the present month, several weeks later than in former years, many welcome flower-spikes have been springing out of the almost full-grown foliage. These, be it noted, bid fair to carry much smaller heads of blossom than is the case when the flowers practically precede the leaf blades.

My object in writing is to ask expert growers of nerines whether their experience of the 1925 crop in any way corresponds with my own.—R. H., *Stratford-on-Avon.*

MICHAELMAS DAISY EDWIN BECKETT.

SIR,—May I say that since the article appeared in which I said I did not know who catalogued this remarkable Michaelmas daisy, I have found that it is listed by Messrs. J. Stormouth and Son, Kirkbride, Cumberland, and Mr. Charles Turner, The Royal Nurseries, Slough. In one list it appears under "ericoides" and in the other under "cordifolius." I should say from its general look that it is a cordifolius. Whatever it is, it is a real beauty.—JOSEPH JACOB.

SOME SWISS ALPINES.

SIR,—The letters and articles recently published in THE GARDEN by those who have enjoyed plant-hunting in the Alps have been of very great interest. Mr. Holdsworth in his letter (page 633) is quite correct in speaking of hybrids of Primula glutinosa × minima on the Passo delle Selle. When there on August 15th last I was fortunate enough to find P. × Floerkeana and P. × biflora. The plants had been long out of flower, but the rounded toothed leaves and mat forming habit were unmistakable. The hybrid × salisburgensis was only found on Colbricon—that is, if Farrer is right in saying that this hybrid only is found there, for the few plants seen differed very little in leaf from those found on the Selle Pass.

The mountain districts east and west of the Adige seem particularly rich in hybrid primulas. P. × discolor and a series of hybrids between P. spectabilis and P. minima were found in the west and what appears to be a hybrid between P. œnensis and P. glutinosa: but these plants are hard to determine—and also to find—when out of flower.

You have, Sir, asked in your pages for the experiences of those attempting to grow the more difficult plants. Whether the large amount of sun we have enjoyed this season is responsible I cannot say, but for the first time since the plants were brought here in 1922, Androsace glacialis has flowered in character—over thirty flowers on a 2in. tuft—and the foliage could only be seen here and there through the flowers on the other plants. The androsace was planted in 2ft. of ¼in. path gravel riddlings, with a little powdered leaf-soil added. This year a top-dressing of the above, plus silver sand and powdered charcoal, was given—with, to me, the amazing results I have described.

This has been a good year for the more difficult plants. Androsaces argentea, helvetica, Charpentieri, ciliata, pyrenaica and glacialis have all flowered well; Primulas Deorum and glutinosa have flowered and still seem flourishing.—C. C. MOUNTFORT, *Uppingham.*

GRAPE VINES and THEIR NEEDS

THE precise time at which vines should be started into growth should be governed by the time at which the crop is required, due regard also being paid to the capabilities of the heating apparatus. It may, however, be laid down as a general rule that a fairly late start is better than a very early start.

Before the eyes begin to break the prudent cultivator will take care to clean thoroughly both the rods and the whole interior of the vinery, for without a perfectly clean start there will be not the slightest chance of going through the season without trouble, and when, half-way through the season, cushion scale, mealy bug or other pests make their presence apparent it may very likely mean considerable damage to the crop in order to gain a mastery over the enemy.

All loose, frayed bark should be removed from the rods and trunks. It is of no service to the vine, but will prove to be a great harbourer of spores of fungi and eggs of insects.

Gishurst Compound is a well known and well tried article which makes a very effective cleanser of vine rods. It may be used warm, and with a small, soft-haired scrubbing brush, in just such a way that one would wash ordinary woodwork with soapsuds. The rods should be taken from the wires for the purpose of cleaning, and advantage should be taken of the opportunity thoroughly to clean the wires by rubbing them well with cloths soaked in paraffin oil.

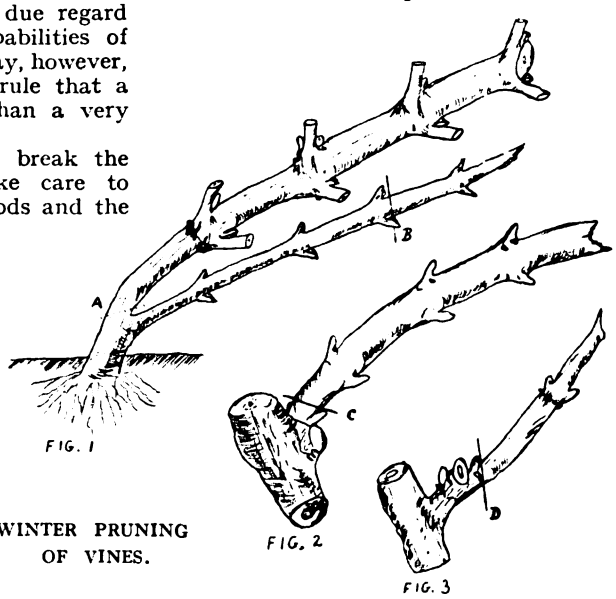

FIG. 1 FIG. 2 FIG. 3

WINTER PRUNING OF VINES.

Homco Soluble Paraffin, or some other properly prepared paraffin emulsion, is a good winter spray for vines, and may be specially recommended for cushion scale. Mealy bug is stubborn and tenacious, but it can with perseverance be routed by using a very strong mixture of Gishurst Compound, or of soft soap, to which a few drops of strong nicotine or of XL All Fumigating Compound has been added, the mixture being

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worked into every joint and crack in the bark with a short-haired brush.

Before growth starts vines should be carefully pruned. Method of pruning will depend upon the age and condition of the vines. A newly planted vine should be cut back to the junction of the vinery roof with the wall. The strongest eye that breaks into growth (generally the first below the cut) is allowed to develop, the rest of the young shoots being pinched out. The longer the young stem grows the stouter it will become, and that is exactly what is wanted, albeit the following winter it must be cut back to within 4ft. of its starting point (Fig. 1). That is where many vines get spoilt, the owner's impatience inducing him to leave too great a length of the first season's growth.

The topmost eye on the shortened rod is again allowed to grow unchecked, and the lateral or side growths are also allowed to grow until they reach the fifth or sixth joint. The next winter the young rod is again robbed of from one-third to a half of its young growth, and the lateral shoots are taken right back, leaving one eye only to each (Fig. 2). The third year the main growth is left the full length of the roof, and no further extension is allowed. The laterals are again cut to one eye (Fig. 3). So long as the main rod retains a healthy condition the annual winter pruning will consist of shortening the laterals to one eye.

It may happen that one takes over an old vine which through neglect has got into a bad, unhealthy condition, and the question arises whether cleaning, nourishment and care will effect a speedy recovery or whether it will be better to sacrifice a year or two of fruit in order to cut out the old rod and lay in a young one. The method of procedure if the latter course is decided upon is, to saw through the old rod at 2ft. or 3ft. from its starting point, trim the edges of the stump with a very sharp knife, and seal over the wound with mastic, styptic or some similar waterproof preparation. Select the best eye that breaks and treat exactly as has already been described. The removal of limbs must not be undertaken after the sap becomes active in spring. A good plan where an old vine has two or three rods is to cut out one a year until the whole vine is rejuvenated.

The feeding of vines is another matter that must claim careful consideration. Vines make a large amount of growth and foliage, while the development of the berries involves absorption of much nourishment. Foods must be rich and not too rapidly soluble. Good dried blood manure is serviceable, and bone-meal is a favourite food for vines. This, however, is not applied to best advantage if merely scattered over the surface and left exposed, but if mixed with a quantity of good soil, leaf-mould or spent hops, and laid on a good thick mulch, first loosening the surface soil of the border with a rake, young roots will come up for the nourishment, and it is always a good plan to encourage surface rooting, so long as a watch is kept that they do not suffer later on from drought.

For many years Thomson's Vine Manure has held a sound reputation for its excellence as a nourishing food for vines, and very many gardeners and exhibitors have consistently used this manure with conspicuous success. Other well known firms also send out good vine manures, and there is no reason to question the value of any brand from firms of good reputation.

There is this one point, however, which may well be borne in mind—vines, appreciate and require change of diet. When a particular mixture of either chemical or organic manures has been used repeatedly it is well that something quite different shall be used for awhile. An excellent change from the proprietary fertilisers would be dried and finely pulverised sheep manure, while it may be beneficial once in a way to use a good ground lime instead of manure. Grapes require a considerable amount of lime; hence the customary advice that in making a new vine border a liberal quantity of old mortar rubble should be buried. Even this, of course, loses its virtue in time, and the lime supply then requires replenishment.

Liquid manure is suitable enough for vines if conditions are carefully studied. It is aggravating trouble to apply liquid manure to a sickly vine if the sickness arises from inactive roots, and it may be added that a very large proportion of the illness of vines does originate from root troubles. Defective drainage, causing sourness of the soil, stops, or at any rate checks, root activity, and drenching borders in that state with liquid manure will only make matters worse.

A. J. MACSELF.

BOTANY FOR THE BEGINNER—II

IN THIS AND THE FOLLOWING ARTICLE, THE LEAF IS DESCRIBED FROM THE POINT OF VIEW OF ITS STRUCTURE AND FUNCTION.

IN the preceding article the green plant cell and its simple organisation were discussed at some length and also the important rôle that the cell fills in the organic world. It was remarked that its vital activity was the same whether it acted as an isolated unit or was one of many cells all living and working together for the benefit of the whole—an excellent democratic scheme. It should be clearly understood that in the evolution of the higher and larger forms of plants from the simple multicellular green plant—wherein each cell carries out all its vital functions, including self-nutrition—it became necessary to assign special duties to particular cells, and hence many, having become fitted for other functions, are no longer green. With this specialisation certain organs were evolved in order to fulfil certain duties, and in the present article one of these, the leaf, will be considered. The discussion of this structure will enable us to follow the green cell still farther, and should emphasise its great importance in the life of the plant.

For a considerable number of years the root of the plant was generally regarded as the organ of nutrition, with the flower and seed as the organs of reproduction. The direct utility of the leaf in the life of the plant was not admitted, it being more or less looked on as an ornament of a somewhat showy description. It has now been recognised, however, that the leaf is as important as, if not more so than, the root in the direct nutrition of the plant. From what has been said of the green cell and its active constructive processes, and with the knowledge that myriads of these cells are to be found in every leaf, it will be clearly evident that the leaf embodies the very essence of a plant's life. Certainly those erroneous ideas which prevailed long ago are to be excused, since the physiological processes of nutrition which go on in the leaf are in a sphere of their own, with no counterpart in the animal world which occurs to the mind when dealing with this subject. Bearing in mind that the leaf is an organ of nutrition and, being composed to a large extent of green cells, depends on the energy of light to carry the process to fruition, we will examine the structure in order to discover the points which render the organ singularly well fitted for the performance of this all-important function. It may be defined as an organ which has been evolved to perform the double duties of nutrition and respiration, and arises as the natural outgrowth of the stem which bears it.

As is well known, it varies in size, shape and texture. A typical example will serve to illustrate the point if the reader can picture in his mind's eye the leaf of a horse-chestnut in comparison with that of a birch, or that of a maple with an oak, and so on. In the majority of cases it is a dorsi-ventral structure, that is to say, it is flattened on both sides. In its simplest form it is composed of three parts, the flattened portion being the blade or lamina, the stalk portion or petiole, and the sheath, which generally is to be found in the form of stipules or leafy expansions at the base of the petiole. Where the petiole joins the stem, there may be a small cushion—scarcely noticeable in some plants. This is the pulvinus. Another small cushion, known as the articulus, may also be found where the blade of the leaf joins the stalk. These two organs are the seats of movement in the leaf, and enable it to respond to wind, thereby reducing to a minimum the danger of mechanical injury. Associated with this reduction of risk of mechanical injury is the fact that the blade is enabled to increase in surface area, which, of course, is most beneficial, since, after all, the leaf is a sun trap, and the larger the area of green material which can be exposed to the air the better. Hence the reason why very large leaves, as well as possessing seats of movement, are subdivided into smaller areas termed leaflets,

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as in the rose. This, arrangement while exposing a greater surface area for absorbent and nutritive purposes, reduces to a minimum the risk of damage by gales and storms of wind.

The most important function of these two organs, however, is in relation to the orientation of the leaf with the amount of light available. The leaf may not be exposed to bright sunlight. In fact, in climates such as ours, it rarely is; but it is always placed so as to absorb all that is available, even although the supply may be in excess of what it can utilise. One should have in mind, also, that as well as being suitably orientated to receive light energy, it requires to be placed in such a position so that it can secure a certain amount of carbon dioxide, the supply of which is limited. By a cursory examination of the leaves of a few shrubs or trees it will be evident that the position of the leaves is such as to prevent mutual shading. In nearly all species of plants the leaf arrangement is a constant one and can be referred to a definite mechanical system. Thus it may be recognised that, by turning and twisting, the leaf endeavours to present all its available surface to the light and air, and when a plant, such as ivy, is growing against a wall, the definite arrangement of leaves, which cannot fail to be noticed and remarked upon, is truly termed a leaf mosaic.

To a certain extent the leaf is supported by the branching framework of veins which ramify through its surface and which may vary in arrangement. In the great group of plants known as the monocotyledons, including such plants as irises, crocuses and all the grasses, the characteristic arrangement is to have a number of parallel veins traversing the leaf with a number of small cross connecting links. And if one recalls to mind the picture of a grass leaf it will be readily understood how such an arrangement is eminently suited to give support to this type of leaf. In the great majority of plants, however, we have one main vein—the so-called midrib—from which run innumerable small veins, which in turn give rise to smaller, ultimately forming a complete network. It resembles a river with its tributaries and streams. The main function of these veins, however, is not to give support and rigidity to the leaf area, but, as will be seen in a later article, to convey water and food material backwards and forwards in the plant body. G. C. T.

GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants.

FLOWERS

MORISIA HYPOGÆA.

THIS is a choice subject for the rock garden, which flowered for the first time in 1834. It was originally introduced by a Mrs. Palliser, the plants having been raised from seeds sent to her by Professor Moris, after whom the genus is named. It is found on the mountains of Sardinia. It was, however, lost to cultivation, but reintroduced by M. Correvon about 1891.

M. hypogæa is one of the most charming rock garden plants, quite hardy, perennial, and not a difficult subject to deal with. It forms flat little tufts or rosettes of glossy leaves, and the flowers, which appear in April, are rich golden yellow, about an inch across, and are borne singly on stems 2ins. or 3ins. high.

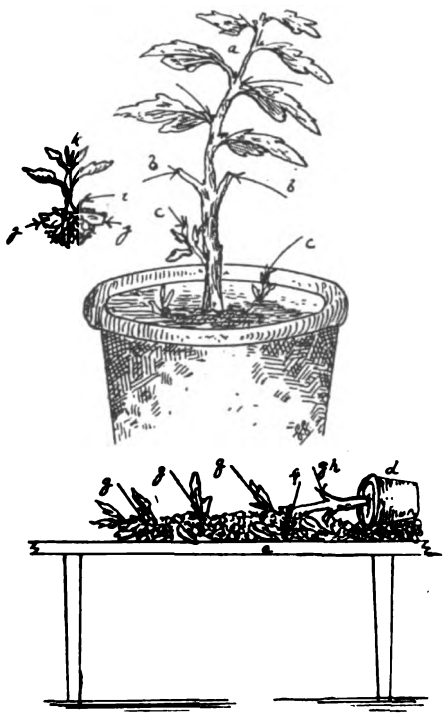
I have found it thrive best in a well drained, deep, light loam to which has been added a liberal quantity of old mortar rubble broken up fairly fine. A suitable position is where it finds tolerably cool root run, and, although a light spot is needed, it does not enjoy being baked by the sun.

The specific name hypogæa is derived from the fact of its burying its seed-pods in the soil, and the plants require watching very carefully if it is desired to collect the seeds. These should be sown directly they are ripe. Other methods of propagation, by cuttings or careful division, give successful results. It can also be increased by root cuttings. A few plants should be kept in pots until they become starved; then the roots are separated from the soil and the plant divided into small pieces. The thick parts of the roots may be cut into ½in. lengths, and these are placed in small pots, just covering them with sandy soil. If arranged in a cool greenhouse or cold frame, tiny plants will soon be produced.

M. hypogæa is an excellent subject for the rock garden, and very effective in pans in the alpine house or frame.—T. W. B.

"FIXING" A CHRYSANTHEMUM SPORT.

CHRYSANTHEMUMS sport more freely in some years than in others. And all over the country where these plants are grown, judging from enquiries I have received as to the right way to "fix" a sport, the plants are adding, probably, a few more gems to those we already possess. The sport duly "fixed" is, generally, similar in form to the one from which it sports, but instead of being weaker in constitution it is stronger. For the benefit of the inexperienced I will briefly describe what a sport is and how it is "fixed." A white-flowered variety may bear a yellow



flower on one stem. The variety W. Rigby first appeared on a stem of a plant of the variety Mrs. Gilbert Drabble. When the new flower is to be fixed the stem bearing it, as shown at *a* in the sketch, is carefully retained and all other stems, *b*, *b*, are cut off; also, any stem or root cuttings formed below that point, as shown at *c*, *c*, are discarded. If these were rooted the resultant flowers would be similar to the original ones in colour. The pot, *d*, is placed on a greenhouse stage, *e*, also the stem its whole length as shown, and fine gritty soil placed on 1in. deeper than the stem, so that all joints are covered with it, as shown at *f*. The desired young shoots grow up from the axils of leaf and stem as shown at *g*, *g*, *g*; *gh*, showing the stumps of the other stems. When the new shoots are 2ins. or 3ins. long, cut off the old leaf, *i*, and the stem, *j*, *j*. The new plant is shown at *k*; it is grown in the usual way and will bear the new colour—true to it as a sport on the parent plant.—GEO. GARNER.

THE CHRISTMAS ROSE.

THE Christmas Rose, to give the plant its common name, is much to be admired, being so hardy and thriving with a minimum of attention at a season of the year when flowers are most welcome. They were to be found in bloom at the end of November, while a plant of major or altifolius—an early flowering variety of the type—nestling fairly close to the base of a cupressus bush commenced expanding its blooms during the last week of October and is still in flower. It may be interesting to state that this plant flowered at the same time last year.

If flowers are desired for cutting, protection of some kind will be necessary, as continued rains detract considerably from their beauty. The flowers appear among the leaves, and therefore receive some natural protection. Each stalk bears one flower, although sometimes two are produced, but when this is found the primary flower is always the larger. In small groups—say of three clumps each—the plants when in flower look well and have a marked effect.—D. A.

ANCHUSA ITALICA DROPMORE.

MOST cultivators of hardy border plants know and grow this handsome alkanet, yet it may not be generally known that the leaves and crowns suffer much in severe weather. Therefore no time should be lost in having the plants protected, especially those that were planted out last month (November). In the past we have found weathered coal ashes heaped around and underneath the leaves of each plant to be a clean and ideal protective material, which keeps the plants safe throughout the winter.

The anchusas are plants which respond to generous treatment, and on well manured and deeply trenched ground they make luxuriant growth and flower profusely. Young plants can be raised from seeds sown in spring or throughout the summer. In addition to seed one can propagate from the roots of older plants. If one or two plants which have flowered are dug up any time during the autumn or early winter, the firm and vigorous roots—from ½in. to 1in. in diameter—should be cut into sections each

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about 3ins. long. These should be inserted in boxes of medium fine sandy soil, keeping the top ends uppermost—a slanting cut having been made at the bottom end of each, where difficulty in knowing one end from the other is likely to arise. When each box is filled the top or flat end of each root—those being set vertical in the earth—should just show on the surface and be level with the soil. Place the boxes out of doors and cover them with coal ashes to the depth of several inches. They should be left thus until the green growths appear, when they should be exposed to light. In the month of April or May the young plants should be carefully separated, and set out in good soil in the reserve garden. —DAVID ARMSTRONG.

GREENHOUSE

PLANTS UNDER STAGING.

THE owner of a small greenhouse is always anxious to grow as many plants in it as possible: to make the best use of the structure and because he loves the plants and their flowers. But many greenhouses have their stages overcrowded with plants, while the borders underneath are left bare. There are many kinds of plants that will thrive just under the front portion of the stage and their presence helps, considerably, to furnish the structure. In the first place it is advisable to prepare a good border of soil, one averaging 7ins. in depth and 1ft. in width being generally suitable. In the warm greenhouse Tradescantia zebrina and Panicum variegatum do remarkably well, also Asparagus Sprengeri. The long graceful fronds peep out and look very charming, besides, they are also useful for cutting. A small quantity of peat should be added to the soil for these plants. Asparagus plumosus rarely does well in such positions. Adiantum cuneatum, the maidenhair fern, seldom succeeds under stages, but at the corners they will grow satisfactorily. Pteris tremula will grow remarkably well. If greenhouse ferns are not available, hardy ones will do nicely. Of course, flowering subjects should not be planted in such positions. I can strongly recommend selaginellas as green carpet plants for beds of this kind with or without other kinds of plants; the best time to plant is early spring; single fronds just covered at one end with soil succeed better than large tufts.—G. G.

FLOWER POTS, SEED AND SEEDLING BOXES, GARDEN VASES.

THE present is a good time for making a close inspection of the above, so that all may be cleaned and repaired and, where there is a shortage, buying in the necessary numbers so that they will be available next spring and the early part of the summer, when they are mostly filled with plants. Many thousands of flower pots are cracked and spoiled every winter through being exposed to the frosts, numbers of them being filled or partly filled with soil. When the thaw comes the pots are found to be ruined. All not in use should be emptied, washed, dried and stored in true telescopic fashion—the small ones fitted into larger—and stored in a cool, dry shed or, if outside, in a dry place and covered with boards. Very severe frosts will not harm them if they are kept dry. Old seed, seedling and cutting boxes should be examined, too. It may be that some of them are quite sound, others may have sound sides but rotting bottoms. All such, in my own case, are cleaned, after discarding the old bottoms, and new bottoms are fixed on the opposite side—the top. Boxes treated in this way will do service for another year. Every old box should be whitewashed inside to sweeten the wood and as a precaution against fungus. Boxes that are now covered with fungus, if only a little, should be burned. Summer flower vases should be emptied of soil and stored unless they are fixtures. Wooden ones, certainly, should be stored, cleaned and painted.—CHRISTCHURCH.

MID-WINTER TEMPERATURES UNDER GLASS.

I AM induced to write a note on this subject because I know it is a fact that many owners of new glass structures waste much good fuel in maintaining unnecessarily high temperatures during the wintertime, and they do this to the injury of the plants they wish to benefit. We grow stove plants in the structures which are heated most; warm greenhouse plants in the intermediate temperatures and ordinary greenhouse subjects in those structures from which frost and excessive damp are kept. If there is a miscellaneous collection of plants in one house, some requiring the highest and others the lowest temperatures, respectively, then it can only be safe to maintain a heat suitable for the tenderest kinds. The others may be made more tender for the duration of the winter, but they will survive and soon gain some robustness with the return of naturally warmer weather. If the reverse conditions obtained as regards internal heat, the tender plants would receive a very severe check, from which they would not recover to be, at least, normal again. Where there are cool greenhouse plants and means to apply heat, a little of the latter in the winter will do them good, not harm. But it is where fruit trees, such as vines, figs and peaches, are associated with ordinary greenhouse plants that great care must be taken about temperatures. Until late in winter, when the buds of the fruit trees begin to swell, the internal heat must be only sufficient to exclude frost.—HANTS.

MISCELLANEOUS

THE MISTLETOE.

ALTHOUGH the mistletoe grows comparatively easily in this country as far north as the fruit lands of central Scotland, yet it is comparatively rarely found, and, at this season, an immense quantity of it is brought across the Channel to all our large towns. We are not prepared to state that its culture might be a profitable business over here, but this we do know, that one plant will furnish all that is needed in any household for a lifetime at least.

As every reader knows, the mistletoe is a parasite. It is found growing well above the ground on apples, the lime, the black poplar, and less frequently on many other trees, including the plum, the rowan, the oak, the hawthorn, the plane and the sycamore. It is raised from seed sown directly on the tree; a branch some three or four years old is the best; a tongue of bark is cut, the gummy seed is squeezed from the berry inside this cut and left there. It is, as a rule, best to insert the seed on the underside of the branch.

Growth is very slow—perhaps the impatience of the modern gardener is one cause of its absence; the first season only two cotyledons or seed-leaves are produced, and for three or four years development is abnormally slow. Once it is well established, however, it is there for good. We cannot say that it is really harmful to its host; it may be, indeed, that there is a kind of symbiotic co-partnership where the one helps the other and both stand to gain; but there is many an apple carrying a mistletoe shrub and still doing well. It may be remarked here that this parasite does exceedingly well on the ornamental crab apples found in gardens and in no way detracts from their usefulness.

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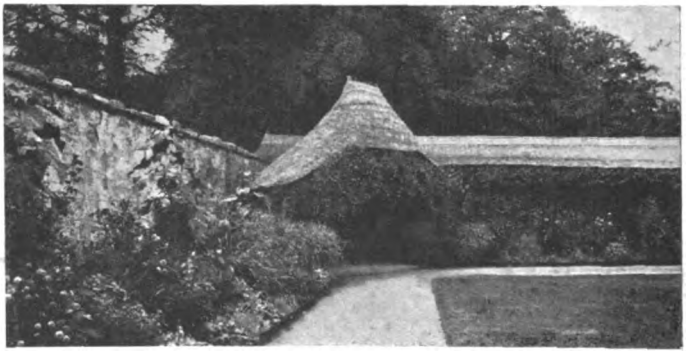

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THE GENUS NOMOCHARIS

FEW gardeners, probably, have heard of the nomocharis, a genus of liliaceous plants that lies between the fritillaria and the lily. These three genera form a close cohort and show distinct signs of a common ancestry, which is undoubtedly the reason why certain of the species when originally described were included among the fritillaries or lilies. In the latest number of the Notes from the Royal Botanic Garden, Edinburgh (Vol. xv, No. LXXI, H.M. Stationery Office, June, 1925, 4s. net) will be found an excellent revision of the genus by Mr. W. Edgar Evans, B.Sc., F.R.S.E., which follows and enlarges on Sir Isaac Bayley Balfour's original paper on "The Genus Nomocharis" (Trans. Bot. Soc., Edin., XXVII (1918), page 273).

After examination of much new material collected by Forrest, Ward and Farrer, and of some old that was not available in 1918, Mr. Evans found that Sir Isaac's general treatment of the genus was sound, but that a certain amount of additions and changes were necessary. The main additions are the description for the first time of two species, Nomocharis euxantha (Smith and Evans) and N. basilissa (Farrer); while the changes are the transference to nomocharis of six species from other genera and the reduction of four reputed species of nomocharis, N. Wardii, N. Farreri, N. leucantha and N. Forrestii. This leaves twelve species in the genus and three varietal forms.

It might be imagined that nomocharis is a genus for the botanist, for up to the present it has not responded happily to garden cultivation. Luckily, it is being found that, with experience, it is not such a difficult plant after all, and I have visions of its gracing many a garden during the next decade. Undoubtedly they are among the most graceful plants that the East has given us, both in the flower—wherein it differs from the fritillarias, as Mr. Evans points out, in the more open dice-box-shaped perianth—and in its habit and growth. Certain Asiatic genera, such as cremanthodium, have not proved amenable to garden treatment, although they have been tested in every conceivable position and by every possible method. Early growing specimens of Nomocharis pardanthina, the first to be introduced, proved small, sickly plants with very inferior stamina. Further experience, however, has shown that considerable depth of soil is necessary for their successful cultivation. At the Edinburgh Botanic Garden they have shown an odd method of growth. A long root is sent out from the bulb, on which another bulb forms about half-way down; the remainder of the root dies back to the secondary bulb. In succeeding years the same process occurs. In fact, the plant runs by means of these secondary bulbs, and a considerable amount of space must, therefore, be allowed it in order that it may move as it wants. In the past it has been treated as a rock garden subject, which is wrong. I have never seen it or heard of it growing anywhere else but on open alpine meadows.

Three species are at present in cultivation—N. pardanthina var. Farreri, N. Mairei and N. saluenensis var. purpurascens. They are all confined either to botanic gardens or to a few private gardens. The latest information, however, about their progress is distinctly encouraging, and it is to be hoped that in a year or two they will be distributed and so trickle into the ordinary garden. The distribution of nomocharis is not wide. One species is found on the western Himalaya, another in Sikkim and general alpine Himalaya, while no fewer than nine species are found in the tangle of mountains where Szechuan, north-west Yunnan and south-east Tibet meet. Two varieties and three species have been found in Upper Burma. This narrows down the main home of the nomocharis to quite a small area, much of which, however, still remains to be thoroughly ransacked, so in the future we may expect further finds in this fascinating genus.

Mr. Evans is to be congratulated upon the lucidity with which he has set a puzzling genus in order. His descriptions and arguments are clear and to the point and appear to be unassailable. One of his great difficulties has been the absence of living material, and I am sure that he would be grateful for any living specimens that could be sent him. The paper is illustrated with fourteen excellent reproductions of herbarium sheets of the various species and variety. These photographs were taken by Mr. R. M. Adam. E. H. M. C.

PLEASE REMEMBER TO TELL OTHERS ABOUT YOUR PLANTS THROUGH THE COLUMNS OF "THE GARDEN."

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

WAYSIDE ROCK GARDENS, by Halliwell Sutcliffe.

JOHN RICHARD ANDERSON: HIS GARDEN DIARY, by Dion Clayton Calthrop.

CALANTHES, by T. W. Briscoe.

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ONE SECRET OF ROCK GARDENING

BY HALLIWELL SUTCLIFFE.

ROCK gardening has now been followed as a serious pursuit for a full generation, and a contrast of to-day's efforts with those of thirty years ago shows an astonishing development in taste and in imagination. But there is a tendency, among certain amateurs who construct their own gardens, to grow formal and stereotyped in work that asks for free, natural handling.

I have known many people, keen gardeners, who declined to interest themselves in rockwork, simply because they had seen so many uninspired efforts. They did not refer to such old-time enormities as the almond-cake gardens, with the stones pointing skyward like so many monoliths. They were thinking of gardens where the rocks were laid truly, the pockets nicely ordered—but all of it too set to a rigid plan, somehow.

The root cause of this conventionality is that your rock garden enthusiast, oftener than not, thinks of first things last. His whole mind is preoccupied with the plants he intends to put there—for their beauty, their rarity, or the colour scheme he is developing. The rocks must be there, of course, because they give shelter, moisture and a frame to these plants he cherishes.

The rocks must do that, and much more beside. They are not humble servants of the garden scheme. They are its adornment and its first concern. The rock garden, indeed, in its nakedness—before ever a plant finds shelter there—should be a place of character and charm. And here one must stress once again the necessity of making friends with the rocks in their natural homes among the wilds.

Many people have imagination enough to give personality to trees, making sentient beings of them. It is astonishing how few have learned a like understanding of the boulders strewn broadcast on our northern uplands. The knowledge is slow to come and hard to win; but, once the intimacy is yours, it is absorbing in its wonderment.

You have learned by this time to be lukewarm about the arrangement that lays smooth stones, however charming their shape, in patterned order and makes artificial pockets by filling the interspaces with soil and limestone chips. Your ardour is centred on rocks whose own fissures are the pockets, and the completed garden, big or little, is a thing of natural, unstudied charm.

Perhaps in no other pursuit is there such comradeship to be found as holds between garden lovers—such readiness to exchange views and sound advice. For your real gardener, as distinct from the man who is merely proud of a display, would have every man's plot thrive to its utmost limit, so that the world should be richer by one more haunt of comeliness and peace. It is this confident freemasonry, I think, that makes another's hint at once so valuable and so readily accepted.

Casting my mind back along the years, I recall quite clearly the moment when my own unexpressed instinct for what one may call the wilder rock gardening found expression. The interpreter was an old, simple-minded countryman—himself the diligent cultivator of a little garden strip that he made magical each year—and he looked quizzically at my rock garden.

" It's all very pretty to them as understands it," he said at last, " but it has a foreign sort of look to me."

His keen eye suddenly detected something that brought a chuckle of delight. A spray of white arabis—the homely, single kind—was blooming free from a cranny of one rock less smooth and conventional than its neighbours. It had sown itself, and was no arranged affair of mine.

" I've always had a fondness for white rock, as we simple folk call it," he went on, " but I never saw it fair in its pomp till now. It's at home—just at home."

Nor had I seen the plant so likeable, now he brought it to my notice. It was indeed " fair in its pomp "—a delectable and dying country phrase—and was as unlike arabis in a usual border as if it were almost of another species.

There was the case of the house-leek, too. I found a big fellow rioting on the roof of a cottage, derelict long since in a wild cleft of the uplands. I transferred him to an honoured place in the rock garden, in a pocket of the usual sort. He did not grow less, certainly, or pine away; but his rough beauty was rendered almost commonplace. He seemed, I fancied, to have all the feeling of one who knows himself ill-dressed, for rocks are in truth the clothes of their plants. So then I sought better quarters for him, found a wide, deepish cranny; and there he lords it manfully, islanded by the grey boulder face on which he constantly encroaches. He is at home, and knows it.

EFFECTIVE PLANTING IN THE ROCK GARDEN.

All the sedums thrive in these natural pockets. So do the saxifrages, tucking their filament roots into the limestone's pores. They are always moist, and never by any chance can run mad with lush growth in rainy seasons. They grow compact, delightful to see in their frilly green, and bloom so lavishly that you almost fear they must die of their wild colour song of joy. Apart altogether from their blossom-time, two of these saxifrages especially give a feast if well matched foliage the year through. One is the crimson-flowered variety. The other is known colloquially as stag moss. Give one bold corner of your garden to these two. Plant them in boulder pockets. Let them run in and out together like friendly neighbours, never encroaching on each other or stealing too much of the grey rock that gives the soft, reflective tones to all their eager green. The stag moss throws up stout, antlered foliage; the crimson saxifrage, lowlier in growth, is compact and good to see, a dancing floor for elves when they creep out o' nights.

The primrose clan works happily into this scheme of gardening. It asks for deep, loamy pockets of the usual kind rather than natural clefts; but these can be formed in the spaces between each boulder and its neighbour, keeping, in this way the continuity of design. Different members of that family not only thrive in such conditions, but show their beauty with an appeal astonishingly fresh and urgent. There is a pink variety. I believe it has not been settled in our corner of the highlands for more than a generation, but it has spread so far and wide among our gardens that some name it the dale primrose. Wherever it grows it is a joyous thing, flowering even in our northern climate not long after such

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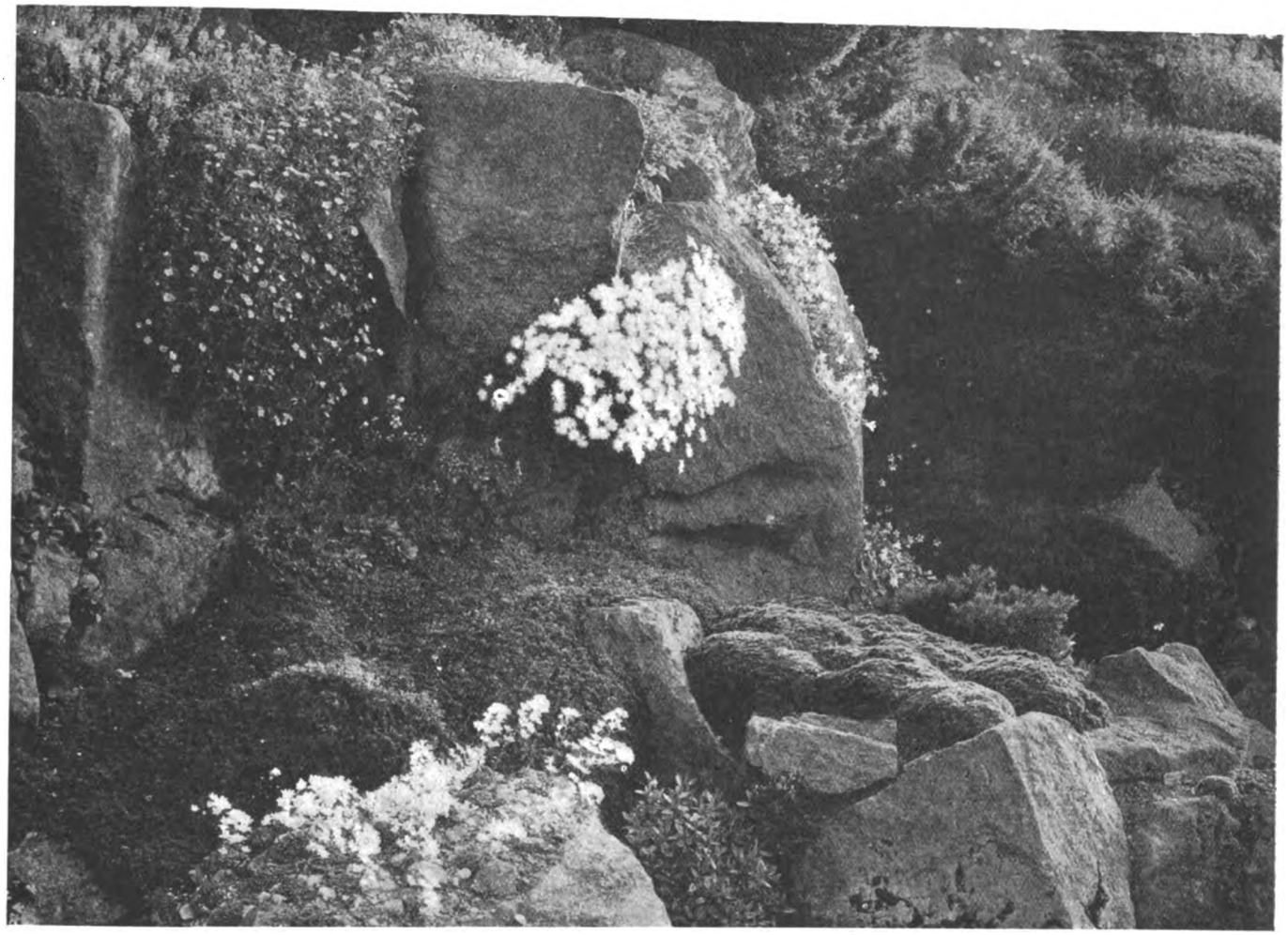

NATURAL GROUPING OF ALPINES IN THE ROCK GARDEN, SHOWING THE ADVANTAGES OF DRIFT PLANTING.

optimists as the snowdrop and its own cousin, the Cashmere primula. But to see its rarest charm, plant it among boulders. The grey, ancient rock and the young eager clumps of bloom are in delicious harmony.

This type of rockwork has one most practical advantage. It is its own weed-killer. No deep-rooted aliens—dandelion, the dreaded gout weed and what not—can push their way through the solid stone. The only weeding asked is concerned with the plants themselves, when they encroach too far and threaten to upset the nice balance between grey rock and leafage. And the golden rule in this periodic thinning is, I think, always to have plenty of the rock exposed. It should be the sea, rather than the islands, in this scheme of emerald and grey.

SOME NIVALIS PRIMULAS FROM TIBET

IN a previous article I dealt with the primulas of the sikkimensis and candelabra sections collected in Tibet in 1924. I come now to another section of garden favourites—nivalis. Of forty species of primula collected, eight, or 20 per cent., belong to this section. Hence it is evident that for the general relationships of our Tibetan primulas we must look eastwards, where this section is well developed, rather than westwards, where it is poorly developed.

Indeed, of the eight species found in Tibet, four are actually Yunnan plants, namely, P. sino-purpurea (K.W. 5731), P. rigida (K.W. 5801), P. pulchelloides (K.W. 5887) and P. pulchella (K.W. 6080). The two last named are, in Yunnan, limestone plants, P. pulchella coming from the Likiang district, P. pulchelloides from Atuntzu. The Tibetan plants, on the other hand, were found on igneous soils. P. rigida is a dwarf alpine, very like the Chinese P. minor, which has been in cultivation. We gathered seed of P. sino-purpurea, P. rigida and P. pulchelloides, all of which are doing well.

K.W. 5731 is structurally indistinguishable from P. sino-purpurea, as I am informed by Professor Wright Smith. But P. sino-purpurea from Yunnan is a rather drab purple, whereas the Tibetan variety is a real high-tension electric blue. It grows in rather boggy alpine pastures on the rhododendron moorland at 14,000ft. With it is found another nivalid, with blatant purple flowers, K.W. 5745. This latter is a microform of P. nivalis, and has been named P. ningiuda. Seed was obtained. P. rigida was local, and we found it in only two places on bare wind-swept alpine grass slopes at 15,000ft. Here the soil is gravelly and well drained. The plant does not exceed an inch in height, but the flowers are large, mauve or purple with white "eye" and very fragrant. We gathered seed from one locality only.

P. pulchelloides was widely distributed north of the Tsang-po, growing under bushes of scrub oak and rhododendron, on well drained, gravelly banks. It likes shade, and flowers early in June. The seed has germinated very freely, and the young plants look remarkably robust. Thriving at a reasonable altitude, 10,000–11,000ft., it should be quite hardy, and it does not need lime. The Yunnan form is in cultivation.

More interesting was another species not seen in flower, K.W. 5973. This was found in the latter half of July growing in the spongy moss carpet of the Picea forest at an altitude of 12,000–13,000ft., though later I found it extending well into the alpine region on sheltered grass slopes. Rich loam and shade are its requirements.

All the primulas mentioned so far, with one unimportant exception, come from the region of dry winters and wet summers, a region covered largely with coniferous and rhododendron

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forest, but with a rich herbaceous alpine flora. Nearly two-thirds of the total number of primulas collected come from that region.

I come now to a species collected in the region of wet winters and wet summers, or perpetual precipitation, the winter precipitation in the alpine region, of course, taking the form of snow. This region is covered everywhere with forest, and even in the alpine region with woody plants (dwarf rhododendron), so that herbaceous alpine plants are fewer. Though primulas were rarer here, they made up in quality what they lacked in quantity.

It was here that we found the extraordinary P. falcifolia, K.W. 5839. I include it because Professor Wright Smith is convinced that it is a nivalid. P. falcifolia has some obvious nivalid characters, such as the narrow strap-shaped leaves and the swollen rootstock, wrapped round by mucilaginous leaf bases. The flower might certainly pass muster as a nivalid. The reduction of the truss to one or two flowers, though unique, is foreshadowed in the lovely P. Coryana, which rarely has more than three, as is also the pronounced obliqueness of the corolla.

THE REGION OF DRY WINTERS AND WET SUMMERS.

The nivalid capsule is diagnostic, and P. falcifolia does not possess it. The capsule of P. falcifolia is globular, and the top comes away exposing a cup full of seeds (which, however, *do* resemble nivalis seeds) as in a typical candelabra (not that P. falcifolia is *that !*).

Anyway, nivalid or not, P. falcifolia with its large single or twin daffodil yellow fragrant flowers is a beautiful object. It is a bog plant—at least in the summer, from 12,000ft. Grown in a bog all the year round, it might survive those more violent changes of temperature and humidity to which it will be subject here. It needs no lime.

The daffodil primula is worth taking trouble over, though it will probably never be a popular plant. It has the curious property of flowering either in June or in October, though no individual plant flowers at *both* seasons. The winter flowers differ from the summer ones only in being scentless.

The relationship between the Chinese and Tibetan nivalis primulas extends also to those curious species which centre round P. Maximowiczii. At the Primula Conference in 1913, Professor Balfour said, referring to these primulas: "The nivalis section has developed a distinct race in north China." Some years later I found P. szechuanica west of the Mekong, in a district which could by no stretch of the imagination be called north China. Much more surprising was it, however, when not only P. szechuanica, already convicted of vagrancy, but also P. Maximowiczii itself turned up on the eastern Himalaya, over 400 miles west of its original locality. We shall have to revise our ideas on the distribution of these primulas.

P. Maximowiczii, K.W. 5817, differs from the type chiefly in the fact that it is, like so many of our Tibetan plants, fragrant. We met with it on steep, broken, forested slopes at about 12,000ft. It is a big plant, 3–4ft. high, with three whorls of dark chocolate flowers and coarse fleshy leaves, brightly silvered on one side. Seed has germinated well.

K.W. 5972 is the margarine-coloured P. szechuanica, another lanky monster, larger than the type, from which it also differs in being fragrant, at least the specimens I collected in Szechuan were certainly not scentless. We found it growing among rhododendron scrub and on the margin of forest at 13,000–14,000ft. It likes a gravelly well drained soil and shelter rather than shade. The seed has germinated well, and both this and the last named are handsome plants in spite of their flowers.

F. KINGDON WARD.

ODONTOGLOSSUMS FOR AMATEURS

BY GURNEY WILSON.

THE high prices realised for certain varieties of Odontoglossum crispum in years gone by rendered the cultivation of these plants particularly interesting, as both commercial and amateur growers secured handsome profits when disposing of propagated pieces. This craze for spotted and blotched varieties has long since ceased, and the demand for imported odontoglossums has practically come to an end. But, the interest in this genus still remains and is now attached to the first-flowering of seedlings raised in this country from carefully selected parents. Fine forms of Odontoglossum crispum have been produced in quantity and can now be obtained at quite reasonable prices. Not only has the formation of the flowers been improved, but the plants themselves are much more vigorous. This essential point of strong constitution not only gives rise to the production of more flowers on the spike, but to flowers of a thicker texture and, consequently, of a more lasting nature.

Only a few years ago all sorts of crosses were made, and with many inferior results. In cases when these seedlings produced nothing good, they had an educational value, for they taught the hybridists what not to cross. From the multitudes of different seedlings which have flowered in recent years it has been possible to determine the species that produce the best offspring, and to-day the careful selecting of parents is more than ever recognised as a very important matter. One of our leading hybridists once very wisely remarked that the very first thing to consider is the constitution of the plant: it is no use creating hybrids unless they can be grown in an amateur's greenhouse. The importance of using not only fine varieties as parents, but, more especially, plants that possess a vigorous constitution, is fully realised to-day, and in it lies the secret of the present popularity of odontoglossum hybrids. In gardens where it was formerly considered a difficult matter to grow orchids successfully, an entirely different opinion now prevails, for, with only the simple means and attention in use for the ordinary occupants of a greenhouse, it has been found that odontoglossums thrive amazingly. This change has been brought about, not by the creation of more skilful cultivators but by the production of a race of plants eminently suited to the requirements of amateurs and to the atmospheric conditions of their greenhouses.

With regard to temperature, it will be found that odontoglossums succeed best when the thermometer does not fall below 50° Fahr. During severe weather no harm will occur

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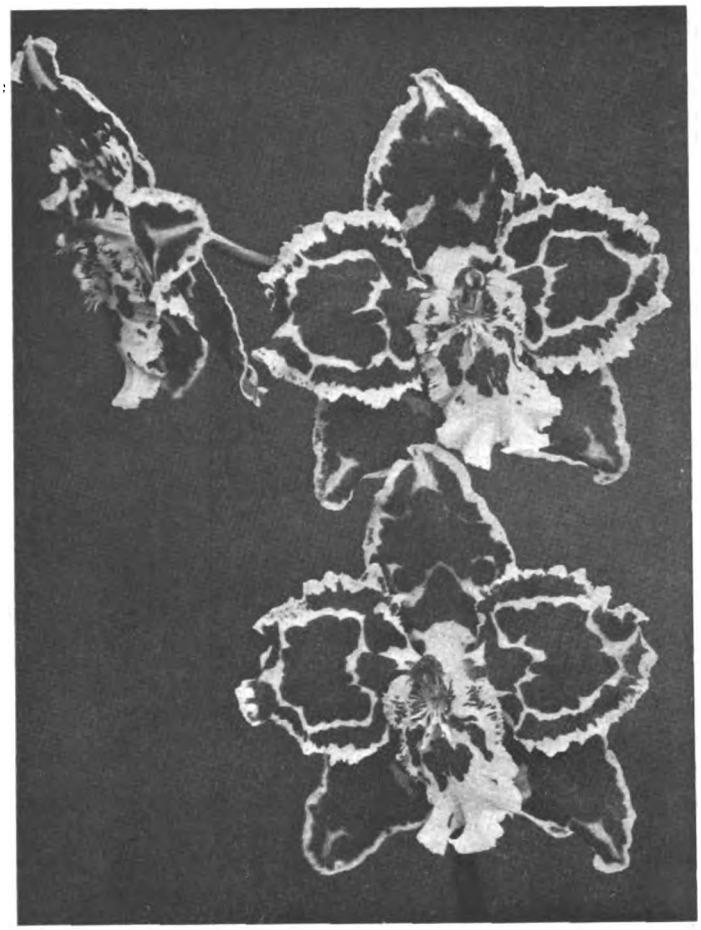
if 45° is occasionally registered. Many instances are known when the plants have safely withstood still lower temperatures, but it must always be remembered that the ambition of the cultivator should be to grow and improve his plants, not merely to keep them alive in a semi-dormant state. Generally speaking, odontoglossums commence their new growth in the autumn, continuing their activity right through the winter, and completing the bulbs in the early spring, after which the flower spikes are produced.

The natural habitat of odontoglossums is on mountain ranges in South America, where the atmosphere is buoyant and moist, and at an altitude where the temperature is fairly constant throughout the whole year. On that account the greenhouse in which they are being cultivated should be protected from bright sunshine. It may be said with a considerable amount of truth that the most anxious time for the cultivator of these plants is during the hot months of summer, when it is frequently impossible to keep the temperature down to a reasonable figure; any continuance of over 75° Fahr. has a weakening effect. However, this need not unduly worry anyone, for the cooler weather of autumn very soon rectifies matters.

The fact that a plant happens to be an orchid in no way implies that it must be coddled up as a delicate thing. For odontoglossums the atmosphere should at all times be moist and of a temperature varying between 45° and 60° Fahr. in winter, according to the weather, and as cool as possible during the summer. Ventilation is an important part of the cultivation of these plants. Fresh air should be judiciously admitted by means of ventilators placed beneath the staging and, if possible, below the level of the hot-water pipes. Too frequent use of the top ventilators allows the atmospheric moisture to escape, which should be avoided as much as possible. Frequent damping down of the floor and under-stagings is of much use in creating the necessary moisture. One might continue giving detailed instructions for every week in the year, but amateurs who can grow maidenhair fern—and who cannot?—will succeed equally well with odontoglossums, for they require almost similar atmospheric conditions.

Mention has been made in previous articles of how cypripediums and cymbidiums succeed in a loamy compost, or in a mixture of loam and fibre. But odontoglossums are much more particular as to the compost employed. On no account should any loam be used, or any substance of a similar nature. Nothing surpasses a mixture of fibre and sphagnum moss. Peat sufficiently good for orchid cultivation is now almost unobtainable and its place has been taken by other fibres, procurable from the trade orchid growers and sundriesmen. In practice it will be found that the smaller plants grow best when potted in a compost of three-quarters fibre and one-quarter sphagnum, but the larger plants do not require so much moss—a soft compost not being conducive to the production of flower spikes. Generally speaking plants of flowering size require re-potting annually, at a time when the new growth is a few inches high and about to send forth new roots. Young seedlings which continue in active growth without flowering require attention more often, say, every six or nine months. One cannot omit to mention the importance of using clean fibrous compost and also of packing it firmly in and around the roots. If the plant is held up by the bulbs and the pot falls off then the compost has been filled in much too loosely. A potting stick, such as can be made from the handle of a toothbrush, is necessary to accomplish the task in professional style. The final item consists of neatly trimming the surface of the compost with a pair of scissors.

While the home-raised forms of Odontoglossum crispum are the most popular of the species, there are innumerable hybrids suitable for the amateur. One may mention Odontoglossum amabile, ardentissimum, Rolfeæ and, in fact, all hybrids containing such well known species in their parentage as crispum, Pescatorei and Harryanum. When we take into consideration that about one thousand different odontoglossum hybrids have been recorded, there can be no doubt whatever as to the great popularity which this genus enjoys, and the amount of material from which amateurs can make their selections.



A TYPICAL ODONTOGLOSSUM HYBRID OF O. CRISPUM PARENTAGE.

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Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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NOTES OF THE WEEK

ROSE HARRY KIRK.

NOW that we are once again in the midst of the rose-planting season I should like to draw attention to an old and, I fear, rather neglected variety, namely, Harry Kirk. This, in the writer's opinion, is one of the best garden roses in existence, and it is certainly his favourite yellow, though, of course, it cannot vie with some of the modern varieties in brilliance of colouring. The buds are a deep sulphur yellow marked on the outside with crimson, but, on opening, the colour fades to a primrose yellow, and the flowers are produced with great freedom far into the autumn. It is a vigorous grower and makes a fine bedding rose, while it makes a beautiful standard, for which purpose it comes a close second to the ever popular crimson Hugh Dickson. It seems a pity that this reliable and beautiful hybrid tea should receive so little attention—it is seldom mentioned nowadays in articles on roses in the gardening papers, but, unfortunately, the present craze for brilliant colour seems to be pushing many well tried favourites into the background, though were I to be confined to six varieties only, Harry Kirk would undoubtedly be one of them. Probably, however, most readers of THE GARDEN will disagree with me. Lest critics may suggest that I have not tried the modern yellows, I may say that Golden Emblem, Mabel Morse, Souvenir de Claudius Pernet and Christine have been, or are at present, grown in our garden, but the subject of this note has not been displaced in favour.

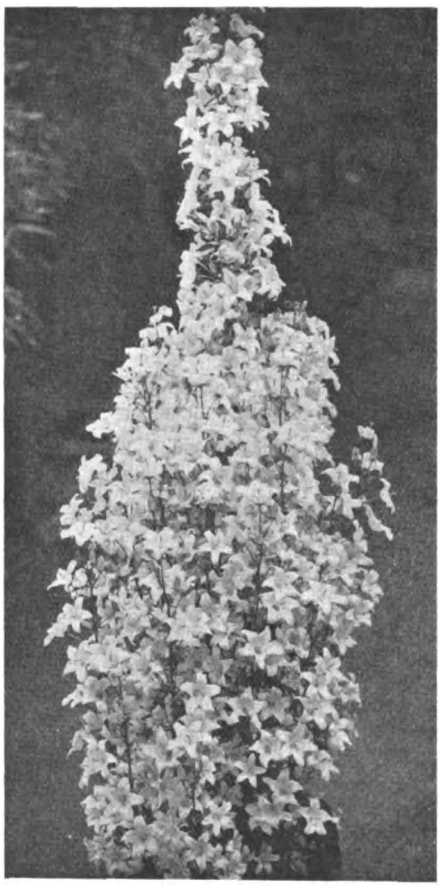
Of these four sorts Christine is the most reliable, though smaller in size of flower; Golden Emblem and Mabel Morse are uncertain and, with us, by no means free flowering; while Souvenir de Claudius Pernet is not so attractive either in foliage or colour.

I hope some readers of THE GARDEN who may be making a selection of roses for present planting may be encouraged by this short note to include a few plants of Harry Kirk in their order, and if they do, provided vivid colour is not their chief aim, I do not think they will be disappointed.

Of course, it must always be remembered that it is a case of different roses for different gardens and districts, and that I can only vouch for Harry Kirk's good behaviour with us, situated in the North of Ireland; but the same applies to all rose growers who recommend their favourites, and consequently I venture to contribute this note.—CECIL M. BAILEY.

OCTOBER ROSES.

THE following roses were in bloom during October in a Sussex garden: Mme. Lambard, Parfum de l'Hay, Lieut. Chauré, C. V. Haworth, Catherine Mermet (a still indispensable old rose, far superior to many modern varieties in vigour of growth and freedom of flowering), President Wilson, Alexander Hill Gray, André Gamon (a little known, but in my opinion absolutely indispensable rose with a sweet, luscious scent), Argyle (another variety seldom heard of but which is especially good in autumn, fully formed and well scented). Diadem is a comparatively new rose, which hardly comes up to its catalogue description either in colour or constitution. It is a poor grower, but is, nevertheless, a good autumnal variety. Conrad F. Meyer and Commandant Félix Faure, both generally considered to be summer blooming only, have given some good flowers lately, so also has that sweet-scented old crimson Comte Raimbaud and that equally old favourite Marie Baumann. Laurette Messimy is always good. Raymond has been full of its somewhat variable flowers. Etoile de Hollande, Etoile de Luizante and Etoile de France, which last has many buds even at the date of writing (October 28 h), but they seem to make a poor job at opening them. I imagine Etoile de France would be good under glass. General McArthur, Rouge Angevine, Benedicte Seguin and, best of all, that beautiful old scented yellow Harry Kirk, the fragrance of which is far more pronounced in autumn. Among the ramblers a dear old rose named Seven Sisters has had masses of panicled bloom (and is still in bud) almost white with distinct china pink shading. What modern rambler can beat it? To-day I notice blooms of Hadley which lasts well indoors, and the half-opened buds open out to perfection



THE STATELY CHIMNEY BELLFLOWER
C. PYRAMIDALIS.

in water, whereas many roses fade more quickly in autumn when cut from the open border; Willowmere, the last of Mary Countess of Ilchester, an excellent and never-failing autumnal; Earl Haig, one of the most floriferous; Prince of Wales, Padre, Dr. Joseph Drew, National Emblem, A. R. Goodwin, Severine (in bud), Safrano, Socrates, Cecile Brunner, Armosa, Ducher, the old pink China or monthly rose Etoile Luizante, showing another crop of its brilliant pink buttonhole flowers; and Souv. de Georges Pernet, surely the most consistent and certain of all autumnal blooming roses, for its blossoms are as perfect on the threshold of November as they are in the middle of summer. It lacks one thing only, *viz.*, scent. Captain Cant, Captain Kilbee Stuart and Grand Duc de Luxembourg are full of buds if the weather remains propitious for their opening.—EDWARD SHOOSMITH.

THE TALLER CAMPANULAS OR BELLFLOWERS.

THE genus campanula contains a host of species and varieties of unusual merit, largely grown in the border, rock garden, and for greenhouse decoration. They naturally divide themselves into two groups, tall and dwarf, the latter being adapted for the rock garden and walls, and the more robust are suitable for the front of the herbaceous border.

In the present note I shall draw attention to the taller species, which, owing to their vigorous constitution and height, lend themselves readily to conspicuous positions in the border, the shrubbery, and near woodland walks, providing they are not too heavily shaded. The campanulas under notice enjoy a well cultivated border—one that has been dug deeply and not too heavily dressed with manure. In dry shallow soil they do not grow so luxuriantly, probably through lack of moisture at the roots, and when this occurs the stems lose their lower leaves prematurely, while the whole plant is often attacked by thrips or red spider. This drawback, however, can be overcome to a certain extent by affording a heavy mulch of partly decayed manure early in the season, and an occasional application of water if the weather proves very dry. Sufficient moisture must be given to wet the roots thoroughly, a mere sprinkling being useless.

One of the best of the tall campanulas is C. lactiflora, a plant not seen as often as its merits deserve. It is a stately subject with stout stems 4ft. to 5ft. high, freely branched, and has loose spreading panicles of pale blue flowers. The white variety, alba, is a very effective border plant, being a counterpart of the type except in colour; while the form known as E. Molyneux is blue, and attains a height of 2½ft.

C. latifolia is well known, the stiff stems attaining a height of 3ft. to 5ft. The rich violet-purple flowers are disposed in spicate racemes, and are long tubular or trumpet shaped. In the variety alba the flowers are white, and the pale blue Burghalti produces large drooping flowers 2ins. to 3ins. long, and the stems grow about 3ft. high. A very beautiful variety is Van Houttei; and macrantha, with its handsome purple bells, is a fine bold plant for the herbaceous border. Owing to the strength of the plants, stakes are rarely required, and this fact is worth noting, because many border subjects are robbed of much of their beauty and general effectiveness by bad staking. C. latifolia produces seeds freely, and as a rule a number of strong seedlings appear in proximity to the parent plant.

C. pyramidalis and its variety alba is grown extensively in pots for the cool greenhouse, and, moreover, it comes in extremely useful for groups at flower shows during July and August. It possesses great merit, however, as a border plant, and any doubt in regard to hardiness should be dispelled. It is a vigorous plant, readily raised from seeds sown in March, while it can also be increased by root cuttings. The spikes of blue or white flowers are 5ft. or 6ft. high, but the Sion House variety is more dwarf in habit.

C. grandis is suitable for the front of a border, being about 18ins. high. The pale violet-blue flowers are broader than most campanulas, and the habit of the plant is rather distinct. It is readily increased by division.

Perhaps the most popular section of the group under notice is the peach-leaved bellflowers, of which C. persicifolia is the type. This plant reaches a height of 2ft. to 3ft., the flowers are blue and over 2ins.

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across. There are several fine varieties of C. persicifolia, and most of them are worthy of a place in every collection: all they ask for is ordinary good garden soil. One of the best forms is Telham Beauty, which has been honoured with an award of merit from the Royal Horticultural Society. It produces large flowers of a pale china blue in abundance, and is a free grower. I have raised this plant from seeds, and the majority were quite up to the standard of the A.M. form.

Another distinct variety is Moerheimii, an excellent double white; while humosa is a double light blue. Both are acquisitions.

Daisy Hill is semi-double and a delightful shade of lavender-blue, and so is Iris Carlile, which has pale porcelain blue flowers. I have heard good reports of Wargrave Blue, with semi-double flowers of a deep violet blue, and I shall certainly give it a trial.

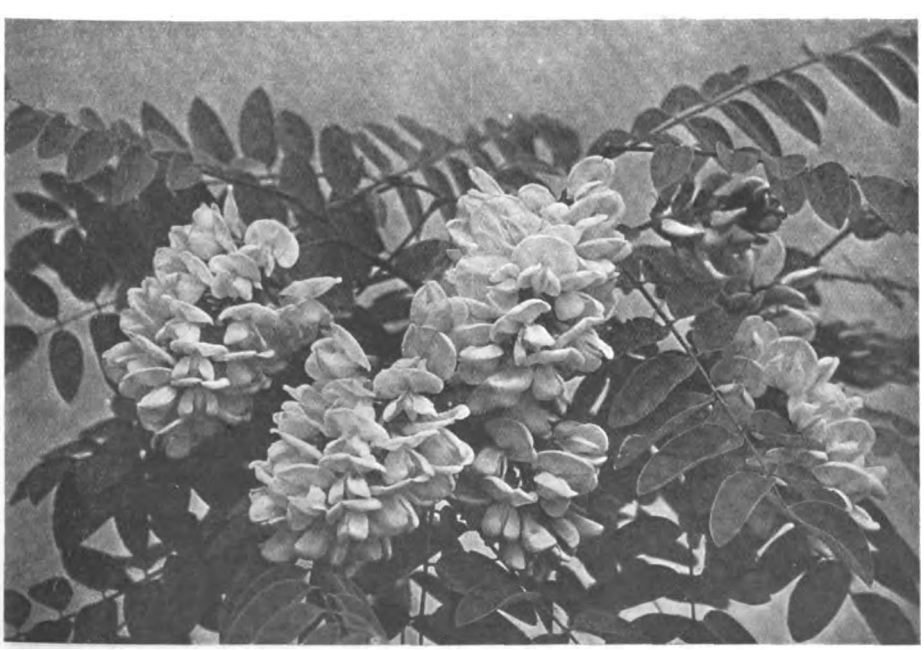
The last but by no means least on my list is C. glomerata dahurica, a handsome herbaceous plant admirably suited for massing, especially where a feast of colour about 18ins. high is desired. It produces clustered heads of flowers of a rich deep purple well over 2ins. long. Other varieties are superba, acaulis and alba, but the one noted above is about the best. All these plants can be increased by division, but C. lactifolia may be multiplied by cuttings of the young shoots that appear on the stems.—T. W. B.

CAMPANULA TELHAM BEAUTY IN THE HARDY BORDER.

THE CLAMMY LOCUST AND ITS HYBRIDS.

WHEN travelling in central Europe, especially in eastern countries like Hungaria, one would not believe that the locust is not a native European tree. Since its introduction from North America shortly before the middle of the seventeenth century, it has made itself surprisingly at home in almost every part of Europe. In the Hungarian plains it forms at present the most conspicuous part of the woody vegetation, and quite often it has become almost a weed on sandy soil or even in well kept woods. At the end of May and the beginning of June when the plants are loaded with their dense white racemes, the locusts are of great ornamental value. Besides the type there are a few very striking forms of Robinia Pseudacacia, such as var. tortuosa, with its strangely twisted branches or var. Ulriciana (or Rozynskiana) with somewhat pendulous branchlets and rather long pendent leaves, which give the tree a very curious appearance.

The common locust is a tree widely spread throughout the eastern part of the United States. The other arborescent locust of the east, the clammy locust or Robinia viscosa, is, however, scarcely known in a wild state, being met with, according to Britton, only in a few localities in mountain woods from North Carolina to Alabama. It was sent to Europe by the famous French traveller, Michaux, in 1791, and as a smaller tree it is of even greater ornamental value than the common locust. It has its Latin name, R. viscosa or R. glutinosa, from the sticky glands covering the young twigs. The pinkish or flesh-coloured flowers are borne in dense racemes. They appear about a week or two later than those of R. Pseudacacia, and are odourless. There are some interesting forms of hybrid origin, between the common locust and R. viscosa, known as R. dubia, R. ambigua or R. intermedia, more than a century old. The type of this hybrid comes rather near R. Pseudacacia, while a later form, known as R. bella-rosea, much more resembles the other parent. Both are very interesting forms from a horticultural point of view, and are still rare in our gardens. Our picture shows a form of the hybrid almost identical with the typical R. dubia, the flowers being nearly white and somewhat fragrant. All these forms grow as freely as the parents. They are hardy, but have to be propagated by grafting in spring on young seedling stock in the glasshouse.—CAMILLO SCHNEIDER.



THE GRACEFUL AND CLOSELY PACKED FLOWER CLUSTERS OF THE HYBRID LOCUST

UTILITY AND BEAUTY.

A CONTRIBUTOR to these columns recently wrote appreciatively of the beauty of vegetables, praising the jade and ivory of the cauliflower and virile beauty of the carrot, and few people, I think, will dispute their decorative value; but we must admit that it is difficult to employ it, except as a subject for still life, in any satisfying harmony with our surroundings.

On the other hand, there are many plants, lodged firmly in the category of vegetables, which can be used, quite practically, for decoration, both indoors and out, and it is worth recalling them now, when the planting season is upon us and the gaps in our borders threaten correspondingly large holes in our pockets.

The common sage does not often get an opportunity of flowering in the garden, but one has only to see it in great stretches of grey and lavender on the sun-baked hills around the Mediterranean to recognise it as a plant of really high decorative value. It needs a poor, dry soil and a sunny aspect to flower well, and, given these conditions, it makes as brave a show as many of its relatives who have an assured place in the flower border. It associates well with the ochreous yellow of the Jerusalem sage (Phlomis fruticosa), and the two plants may often be seen growing together in Dalmatia.

Chives make an excellent edging plant, giving the effect of a lavender-coloured thrift, and free flowering does not diminish the production of leaves, two or three of which add so much to the value of an omelette or a salad. I believe that a variety which grows wild in Cornwall has deeper coloured flowers and is sometimes listed in catalogues of alpine plants as Allium sibiricum.

Rue is a plant that has fallen steadily out of favour since the Middle Ages, till in these pages it was recently labelled as a poisonous plant and relegated to the company of Atropa Belladonna in the medicinal garden. Yet a few of its leaves finely chopped, mixed with butter and enclosed between slices of bread toasted on one side only, make one of the

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most delicious and appetising sandwiches imaginable. Even if it had not this virtue, and a singular tonic property for young turkeys, rue would be a valuable garden plant for the delicate design of its scalloped leaves and their glaucous-grey tone which make a perfect background for flowers of a pure pink, such as the old blush monthly rose, either in a vase of cut flowers or in the garden. Perhaps I am prejudiced in its favour, but to me it is a beautiful, though strangely neglected, plant and even its dull yellow flowers are attractive.

The variegated lemon thymes are—as at least one catalogue has thoughtfully pointed out—as useful in the kitchen as their plain relative, and much more decorative.

Herbs are not the only plants that can be translated with advantage from the kitchen garden to the flower border. The decorative value of the globe artichoke has been long, but not very generally recognised. It has the *grandes formes architecturales* beloved of M. Correvon, and the greyness of its leaves shows up the rich violet of its great thistle flowers; it makes an imposing specimen plant, or it may be grown in a bold group with climbing nasturtiums scrambling through it.

We all admire the fruit trees, apple, pear and cherry, in their superb springtime beauty, yet we seldom plant them, as they did in the eighteenth century, with a thought for their decorative value, though we sometimes make the orchard into a garden with daffodils, cowslips and fritillaries in the grass. As a rule it is only when we see an old apple or pear tree in a cottage garden growing above a carpet of spring flowers that its value as a flowering tree really comes home to us.

The fruit of the medlar is not liked by everyone (though there are few who cannot appreciate the excellence of medlar jelly); but the distinct design of the tree, the large leaves which colour brilliantly in the autumn, and the large white flowers, make a singularly beautiful picture, and almost the same may be said for the quince. But the quince grows so slowly that, unless we are lucky enough to obtain the recently introduced Serbian variety, the full advantage of our planting will go to our children and grandchildren.

There are few more brilliant shrubs in autumn than the common barberry (Berberis vulgaris) when its sombre leaves are lit up with bunches of the long, crimson-scarlet berries. It is not often planted nowadays, partly because of the well deserved popularity of the Chinese species and partly, I suppose, because it is suspected of harbouring the wheat-rust fungus. But it was once commonly grown as a fruit tree, and a jelly made from the berries is rather superior to red currant as an accompaniment to jugged hare and roast mutton, while a seedless variety provides in France that excellent but rather tart sweet known as *conserve d'épine-vinette*. It is almost forgotten as a fruit in England, though before the war it sometimes caught the eye in Oxford Market, making a gay patch of colour among the cabbages and onions.—F. A. H.

A BLUE DAISY.

ONE of the great delights of gardening is to grow flowers that are uncommon, interesting and in some odd way attractive, so it was with pleasure that I obtained some years ago the blue daisy, Bellis cœrulescens. This species of the daisy is in no great degree different from the other daisies, except, perhaps, in size, for it is smaller; the flowers do not rise to a greater height than 3ins. and they are a delightful pale blue. Although said to be hardy, we do not find it so in the north here; nevertheless, plants have occasionally passed through a mild winter in the open, but as a rule the cold rains of January seem to cause its gradual disappearance. The plants do not increase very rapidly, but we always put sufficient for our needs in a rude frame and leave the rest to chance; in rich, heavy soil it flowers freely and we recommend it as a little gem for the rock garden.—CLYDESDALE.

PLANTS AND FROST.

IT is really most irritating to garden lovers to be accosted by the man in the street, after an early snap of autumn frost, to be told what delightfully seasonable weather it is. It is a peculiar thing that when one arrives at some sixty summers, one seems to have no further use for "seasonable weather," which in Scotland, at least, means infernally cold weather—doubtless in hot climes it will mean the reverse.

The night of October 15th brought some of that so-called "seasonable stuff," for, the following morning no less than 12 degrees of frost were registered, the thermometer standing at 20 degrees, which, coupled with a brilliant, mocking sunshine, made a garden, which but a few hours before was a brilliant, gay scene of reds, yellows and purple, a sad, miserable, woebegone spectacle. Yet there were a few plants, a very few, still unsubdued by that cold douche, and surely they deserve our admiration. True! Michaelmas daisies, some of the geums and a stray phlox or two, made a half-hearted effort to show they still existed, but their struggles were like those of the bad sailor on a rough sea trying to be merry, a very forced effort; though, doubtless, they will recover, like the bad sailor when he lands, in better weather. Four plants, however, were quite happy, absolutely so, and not in any way upset for all Jack Frost had done during that night, and by lunchtime were all in their glory again. A careful note has been taken of these, with the avowed intention to bring all four together in large masses, so that at least one cheery corner of garden may still exist in the event of a similar occurrence.

The four plants are (well! two of the plants are shrubs, somewhat like the Irishman who had a light, but it was out), Clematis tangutica, Berberis Prattii, Crocus speciosus Aitchisoni and Gentiana sino-ornata. And what a glorious group they are: yellow, red, purple and blue of the finest quality. C. tangutica has charming thick, fleshy, yellow flowers, and bespattered as it is at present with its silvery seed heads, rambling at will over a rough wall is very delightful indeed. One plant has quite accidentally made a charming effect here by clambering among C. montana rubra, the dark foliage of which makes a delightful contrast to the yellow flowers of tangutica.

Berberis Prattii, has, I consider, by far the finest berries of all the berberis. They are so brilliant in colour, so numerous even on very small shrubs, are distasteful to birds, and frost proof. Although B. Wilsonæ makes a good rival, it was to me somewhat surprising that Mr. Hillier in his recent interesting articles on shrubs did not write in more glowing terms of B. Prattii.

Crocus speciosus Aitchisoni holds pride of place in the autumn-flowering crocuses. It is somewhat larger, has more substance and is richer in colour than C. speciosus. Granted it is much dearer; but while speciosus, with a touch of frost is a slimy, ungainly mass, Aitchisoni is smart, upright and ready to blaze open with the slightest encouragement from old Sol, and by noon on the 16th, it was a charming sight. Mice are particularly fond of the bulbs and pheasants are equally as fond of the bloom, so the gardener has not to seek his sorrows with it.

The fourth plant, Gentiana sino-ornata, is one of the very finest autumn alpine plants which it has been my good fortune to acquire, and when it becomes better known will doubtless be seen in every garden of any consequence. It is equally as hardy as G. acaulis and G. verna, and is happy and blooms freely in almost any situation, though it is somewhat of a gourmand and has a decided liking for high living, coupled with a good dash of drink; it seems somehow rather to resent heat, or at least is not very partial to it. I was somewhat surprised by the behaviour of a few plants which I intended to be extra fine. I told my gardener to put them at the foot of a wall looking south, in good loamy soil, though perhaps a little dry, where I hoped they might be exceptionally fine, but to my disappointment they are the most weakly yellow, bilious-looking plants in the garden, and show but little signs of flowering, while a clump in the open border only 12ft. distant is making a glorious display. —FORMAKIN, *Renfrewshire*.

CEANOTHUS.

THE various beautiful shrubs which belong to the genus ceanothus deserve to be much more widely grown than is the case. The species are mostly natives of the North American continent, particularly California, but there is a large number of fine varieties. The colours of the flowers are chiefly blue, but there are white and even rose pink forms. The ceanothus group is divided into two classes by reason of their special methods of flowering. One group develops its flowers in the spring from auxilliary buds on growths matured in the previous summer. The second group bears its flowers in the summer and early autumn from the tips of the current year's growth. These habits call for different methods of treatment which it is most important to note. Most of the spring-flowering kinds are somewhat tender and do best when planted against a wall. Here the branches should be cut back as soon as the flowers fade. The autumn-flowering ceanothus is an altogether hardier plant and any of the species and varieties may be grown in open beds. These should be pruned vigorously, but here the cutting must be carried out in February. The previous year's wood should be cut back to within a few buds of the base, except when it is specially desired to keep any particular branch. In this instance the dead point of the shoot only should be removed. All the ceanothuses can be grown in a well drained loamy soil. Increase is easy by the insertion of cuttings of young shoots in sandy soil in a closed frame during the summer.—S. LEONARD BASTIN.

THE BUTCHER'S BROOM.

IT is always interesting to note the compensations of nature and how every plant is attractive at one particular season of its year. For the most part the common Butcher's Broom is a drab and uninteresting little shrub, whose chief value lies in its shade-loving habit. For a short time earlier in the year the more observant nature lovers enjoyed its lily-like little flowers, which appeared to be stuck on the middle of the spiny leaves. But at the present time the bright scarlet berries, which are almost ridiculously large for the plant, and have taken the place of the flowers on the leaves, flaunt their beauty and need no searching. These vivid berries might almost be likened to miniature oranges set on pigmy leaves and, in the districts where the shrub abounds, provide material for uncommon dinner-table decorations. Although the native shrub thrives best in sandy soils, where the pines also flourish, it can be easily established and will grow well in any thin woodland, where it will enjoy the leafy topsoil. It is interesting to recall that the shrub owes its common name to the fact that at one time butchers made up branches into little brooms for brushing their blocks. That was the day when young shoots of the spindle tree, another bright denizen of our woods in autumn, were exclusively used as meat skewers by butchers. The best chopping blocks were, and mostly still are, made from the wych elm.—A. C. B.

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THE BIRCHES

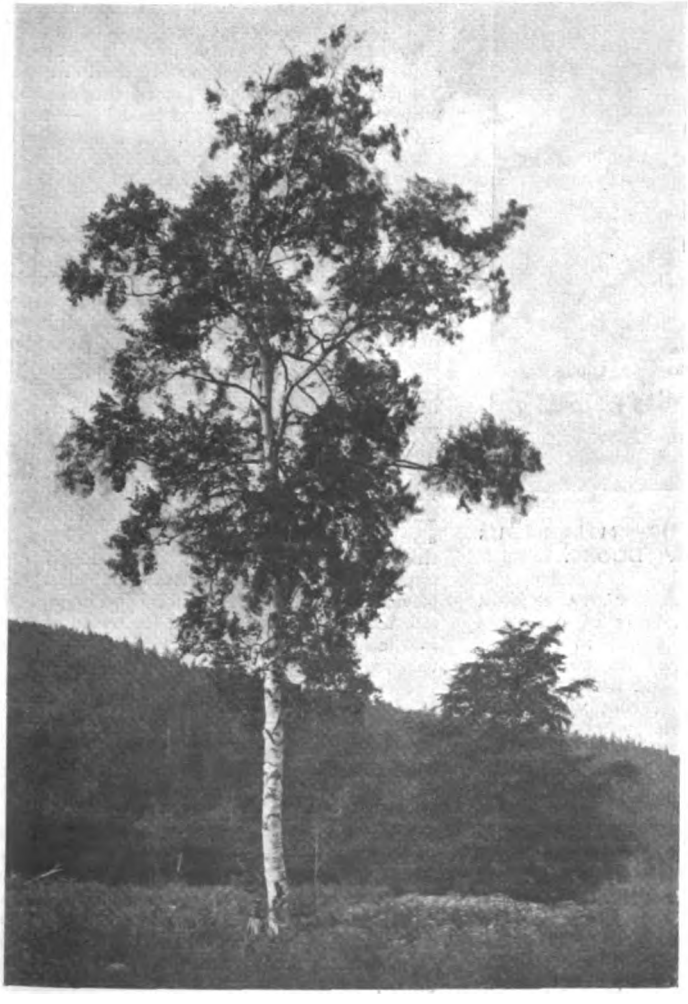
BY E. H. WILSON.

(*Continued from page* 698.)

IN the last article I spoke of the river birch, and this reminded me of B. davurica, which has a similar bark, curled and shaggy, but thicker and deeply fissured into irregular oblong plates that are blackish on the lower part of the trunk of old trees. On the volcanic soils of north Korea, where this birch is so abundant, it forms, together with an aspen (Populus tremula Davidiana), the natural nurse trees of larch. However, it is by no means confined to volcanic soil, and is found west into north China and east into Japan, where it occurs as a rare tree on the Shinano Alps. This Dahurian birch grows from 50ft. to 80ft. tall, and has a short trunk from 5ft. to 10ft. in girth which forks after the manner of its American relative. On trunk and branches the reddish grey bark either peels off or remains in loose untidy masses. The tree grows well in the Arnold Arboretum, but in the British Isles, like other arboreal continental types, it is apt to start into growth early and to suffer from subsequent late frosts. It ought to be a useful tree to associate with larch in the Highlands.

It is passing strange that the foliage of all the birches changes to shades of yellow in the autumn, but in none is the tone richer or purer than in the cherry or black birch (B. lenta). This is a very common tree in the forests of eastern North America, growing from 60ft. to 80ft. tall, with a trunk from 6ft. to 15ft. in girth. The branches are relatively slender, spread horizontally and are pendulous towards the ends, forming an open, narrow bell-shaped crown. The bark is smooth, firm, dark brown almost black, tinged with red beneath, and on old trees furrowed and cracked into thick irregular plates. The black trunks are

B. DAVURICA, THE SHAGGY RIVER BIRCH OF NORTHERN KOREA



THE HANDSOME B. JAPONICA IN NORTH-EASTERN ASIA.

sombre and in strong contrast with the grey trunks of oak and maple, and the white of the canoe and grey birches, among which this tree grows. In autumn its splashes of pure yellow illumine the forests. By fermenting the sugary sap of this tree the birch beer of the Indians and early colonists was obtained, and by distillation is yielded an oil used medicinally.

The Japanese cherry or black birch (B. grossa) very closely approximates to its American relative, but in habit is a less attractive tree. It has similarly aromatic bark, dark, firm and fissured on old trees; but the trunks are apt to divide into two or three massive stems, and the shape of the crown is more open and less shapely. It is common in the mixed forests of Japan, and in Hondo grows to a larger size than any other birch except B. Ermanii. Other names of this species are B. carpinifolia and B. ulmifolia. Like all birches, it varies considerably in shape of leaf and bract and in degree of pubescence, but the colour and character of its bark and its aromatic taste and odour afford ready means of identification in the forests.

The wood of all the red and black birches is valuable, quite a little of it being used in furniture-making, more especially for cutting "mahogany" veneers. The most valuable of all is that of B. Schmidtii, the famous Pak-tal of the Koreans. This has pale brown wood, very much used in Korea for making rollers, mallets and other implements, and exported in quantity to Manchuria and China for making axle-trees and felloes of wheels. This birch seldom exceeds 60ft. in height, and has a short stout trunk clothed with thick dark flaking bark and a broad crown of no particular shape made up of massive branches. The fruit is narrow, cylindrical and erect. This tree is very common on steep cliffs and is especially abundant on the Diamond Mountains, where its clear yellow autumnal tints contribute very largely to the autumn glory of that beautiful region. It crosses to Japan, where it is a rare tree in the Nikko region, a volcanic area. In Korea it loathes volcanic soils, and, so far as I know, is never found growing in them. The Pak-tal is growing fairly well in the Arnold Arboretum, but it needs planting thickly to develop a trunk, for, like B. grossa, it has a strong tendency to start life as a shrub rather than a tree. The wood and bark of the very different B. chinensis is almost identical with that of B. Schmidtii, and the Koreans designate it the lesser Pak-tal. This is always a small tree—indeed, very often a bush, and in Korea is found at low altitudes and on any kind

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the ordinarily dug soil, prevented air passing through it and frost reaching any portion below the top 4ins. or so. As a youth I was fond of ridging clayey soils, and, as years passed, I was more and more convinced that heavy soils properly ridged did improve during the winter months. Some owners of gardens may object to huge ridges of soil in them; but they should be broad-minded and try some ridging. The ridges should be, approximately, 2ft. high and the same width at the base. Do not break up the lumps, but pile them together; the air will pass through, the soil will never be in a too saturated state, and, if frost comes, it, too will help in the work of pulverisation. In early spring these ridges may be broken and levelled with ease. Splendid beds for seeds and young plants will be available. There will be fewer slugs; they do not like soil ridges.—G.

THE SMITHFIELD CLUB SHOW

WE who are chiefly concerned with gardens and gardening are inclined to consider the great seedsmen, such as Carters of Raynes Park, Dicksons of Chester, Suttons of Reading, Toogoods of Southampton and Webbs of Stourbridge, solely in regard to their horticultural trade. But a visit to the Agricultural Hall, Islington, during the first clear week of December, when the agriculturist goes to see the fat stock and the latest improvements in agricultural machinery, serves to impress the gardener with the magnitude of the business in farm seeds done by such houses as those above named. He quickly realises that equal care and attention are devoted to the strains of pedigree seeds which produce the monster mangolds of wonderful symmetry, to say nothing of the turnips, flat-pol cabbages and the wheat, oats and barley, among the grains.

That size alone does not commend itself to the agricultural seedsman is fully evident from the samples, diagrams and analyses which are on view. Externally the mangolds of similar size have no difference, but it is quickly seen that they may vary considerably in their food value. An example of the variation in value was clearly shown by Messrs. Sutton and Sons. In respect to the sugar content alone their tests proved that roots of different varieties, each weighing 10lb., may show sugar content varying from 6¾oz. to 10¾oz. per root. In their latest strain of sugar beet there was also a considerable variation. Taking roots of equal weights, it is shown that the percentage of sugar ranges from 16 per cent. in the older varieties, to 20 per cent. in the selected strains.

As may be expected, potatoes were an important feature of the horticultural side of the show. In addition to perfect tubers of the sorts in general cultivation, there were less common varieties of considerable merit. Messrs. Carter and Co. had excellent samples of the purple-eyed Catriona. Express for early crops, followed by Advancer, are two good kidney varieties, while their strain of Arran Chief had exceptionally shallow eyes. Ranfurly Red, a pink pebble-shaped tuber, shown by Messrs. Sutton and Sons, was very attractive, as also were Red King and Crimson Beauty. Among the many sorts set out by Messrs. Fidler and Sons, there was a good basket of Edzell Blue, which is flowery and of good flavour when cooked.

The outstanding roots were the immense, but perfectly formed specimens of parsnip Maltese, shown by Messrs. Carter and Co., which it is safe to say have never before been equalled. Webb's Early Kohl Rabi combined attractive appearance with perfection of size and shape, and their standard carrots, of intermediate type, were also admirable. Several exhibitors, notably Messrs. Harrison and Sons and Messrs. E. W. King and Co., had valuable samples of globe and intermediate beet.

Fruits were not quite so largely represented as usual, but Messrs. W. Seabrook and Sons had brilliantly coloured Bismarck, Newton Wonder, Cox's Orange and Rival apples, and Mr. T. A. Scarlett had sturdy three year old busnes of black currant Edina which is said to be resistant to the big bud mite.

CATALOGUES RECEIVED.

Messrs. Carters, Raynes Park, London, S.W.20.—Once more the seed season is with us, and its arrival is heralded with a shoal of catalogues of all sorts and sizes. Every year these brochures seem to show improvement in all directions, and to some extent they stand as testimony to the ever increasing interest which is being taken in all matters pertaining to the garden. Among the first to reach us is that of Messrs. Carters, "Garden and Lawn" for 1926. The high standard of their previous catalogues is fully maintained in the 1926 edition, and the amateur and professional alike will find much to interest him in its pages when he or she sits down to make out the seed order for next year. A wide selection is offered, both in flower and vegetable seeds. The floral section occupies some eighty pages, all of which list up-to-date varieties in the many annual and perennial flowers which can be found to adorn the garden. Included in the lists are numerous novelties for 1926, and to these the amateur should give his attention and consideration. The growing of novelties always adds a certain zest to one's gardening. In the vegetable section all the leading sorts are dealt with and their respective characteristics are clearly set forth. Once again we would draw attention to their new Giant Podded Dwarf Pea, "Giant Stride," which made such a great hit in the vegetable world last year. The reports which have been received from all over the country during the past year testify that the excellent qualities of this pea as set forth by Messrs. Carters are by no means exaggerated. An important section of the catalogue is that devoted to the lawn, in which many grass mixtures are offered, suitable for all types of lawn. Little recommendation is needed in this respect, as Messrs. Carters' name is already sufficiently well known in connection with lawn work. The subject matter is well and clearly arranged, while the illustrations almost overawe it in numbers and excellence of production. The few colour plates which are to be found might have been better executed. They do not present the true appearance of the floral subject illustrated. Still, that is a point of small import in the consideration of the catalogue. It is a manual for all garden lovers. Each and all will find something of interest and help in its pages, and a copy should be procured within the next few weeks, so that the spring work can be tackled promptly in order to give the seeds every chance of growing into fine healthy plants to grace the garden in the year 1926.

Messrs. Geo. Jackman and Son, Woking Nurseries, Surrey.—Herbaceous and alpine plants. Also a list of ornamental trees and shrubs, together with a very fine selection of hardy clematis.

Messrs. Little and Ballantyne, Carlisle. List of ornamental trees and shrubs, including an extensive list of fruit trees.

Messrs. Keith Luxford and Co., Harlow, Essex. Select list of chrysanthemums and perpetual-flowering carnations.

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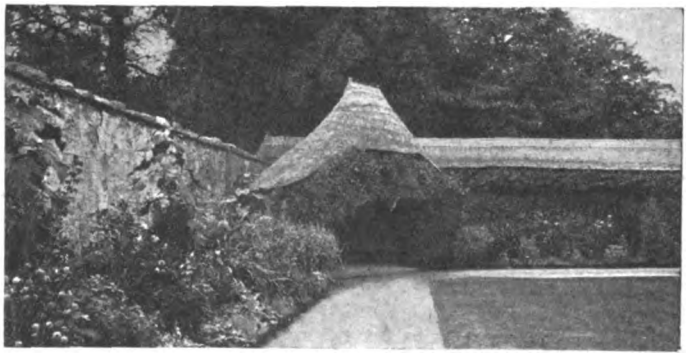

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THE LAST NUMBER OF THE YEAR

AS most readers in the British Isles will receive their copy of THE GARDEN on the day before Christmas, we wish them the compliments of the season. For the next week or so most readers will forget gardening matters or will be storing up energy for immediate work in the garden at the first sign of spring, so let us hope that they will excuse us for quoting a letter that arrived a day or so ago. Our correspondent says: "I wish to congratulate you on your interesting publication, and especially so in respect of the most beautiful and artistic reproduction of the Berried Berberis on the cover of a few weeks ago. The greys, greens, and the bright red berries were admirably rendered. I speak as a printer and so have some knowledge of block printing. I think that week's cover one of the most artistic that I have yet seen THE GARDEN enclosed in, and worth preserving when the time comes to bind up this year's volume. With best wishes for the continued success of THE GARDEN."

Now, that letter is one of the pleasantest Christmas presents for which any editor could wish. It is the habit of many of the general public to consider the Press as a frigid and soulless institution; but I, as a small member of a mighty unit, like appreciation as well as anybody else. I have likes and dislikes the same as any other mortal, and I take the greatest pleasure in feeling that—in the case of THE GARDEN, at any rate—there is a feeling of comradeship between the editorial staff and the readers of the paper.

We hope and believe that the paper is gradually taking a form that is both instructive and interesting to the majority of gardeners. With the present change that is taking place in post-war gardening, we have had to feel our way, the same as anybody else. It has often proved difficult to judge what to include and what to leave out: our judgment has been influenced by our belief that most gardeners are interested not only in ordinary flowers but in an occasional out-of-the-way flower, and not only in the result but in the processes of growing. This is a change from old-time gardening, when the owner of a garden bothered little as long as a sufficient supply of flowers and fruit was produced by his gardener. Many of our readers would help us enormously by sending in constructive criticisms of the paper, for it is by such means that we can keep in closer touch with what gardeners want and like in the way of information. Some old friends of the paper are consistently helpful throughout the year, but we should like every reader to feel that he had a personal interest in the paper. It is natural that some suggestions that have been made we have been unable to carry out for various reasons, but the majority have been acted upon and in many cases have gone a long way towards helping our judgment.

Gardening is divided up into so many classes for which we have to cater that there is bound to be a proportion of the information we give in any individual issue that does not bear directly on the interests of each and every gardener. There is the specialist in a particular genus; there is the gardener who lives for his vegetables or fruit; there is the experimenter; there is the gardener whose only interest is in broad colour effects; there are many other types of gardener. All these have to be thought of when we make up the contents of our paper, and sometimes it is no easy task. E. H. M. C.

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WAYSIDE ROCK GARDENS

BY HALLIWELL SUTCLIFFE

YOU find them in many a village of the dale. Before the world got busy with what it fancied a new gardening cult, there were humble folk whose cottages had only a strip of turf between the wall and the highway. They could roam at will into woods carpeted with sheets of hyacinths, or through cowslip meadows. The moors were theirs, when heather swept in red and lilac glory from rim to rim of the hot August sky. So were autumn's woods, painted by the master hand. Bare-boughed trees, when the snarl of winter came, had a clear-cut beauty of their own.

They had free range and warren, as the old phrase goes, to satisfy their garden hunger. Yet here and there, up the long dale, one cottager was not content until he had a garden of his own. He cut the strip of turf—the strip that lay between his dwelling and the highway—into sods, and laid them " down-side-up " in a heap.

Then he sought out sundry, thick-thewed cronies, borrowed planks and a horse and cart, and together they brought down gallant rocks to his cottage front—big fellows, with the gales and suns of centuries in their seamed faces.

His friends laughed at him, no doubt, as they helped to lay the stones in place, and saw nothing at the end of their toil but a jumble of naked rock, its spaces filled with soil and lime-stone chips. He let them laugh, and went often and alone into the hills that had furnished him with stone. There he gathered his little store of roots, planted them in his garden strip without delay, and watered them freely. It was simply transferring them from one rock pocket to another, and his view of the matter was that " when they woke up on the morrow they wouldn't know they'd been shifted."

I am sure he put it just that way. Such gardeners have simple hearts, and they think always from the plant's standpoint, as individuals with sensibilities human in their capacity for joy or heart-ache. He did not want his nurslings, stolen from the big hill cradle up above, to pine for home—knowing that plants can die of sorrow, though you feed them with all their bodies need so far as soil and aspect go.

By and by he had his reward. It took time, of course, as all worth-while adventures do; but presently the village folk began " to sit up and take notice." Along the cottage front, nearly the whole year round, blossom painted the hoar, age-old rocks with charm. Snowdrops and aconite first, the only flowers that seemed to be of the garden, not the wilds; but even these he had gathered from a neighbouring spinney. There had been a great house on the site, tradition said. Its memory bloomed in spendthrift wildness every March, when the beech buds above were little and tight and brown, and stormy sunlight glinted through bare branches on that wonderful carpet of white and golden yellow.

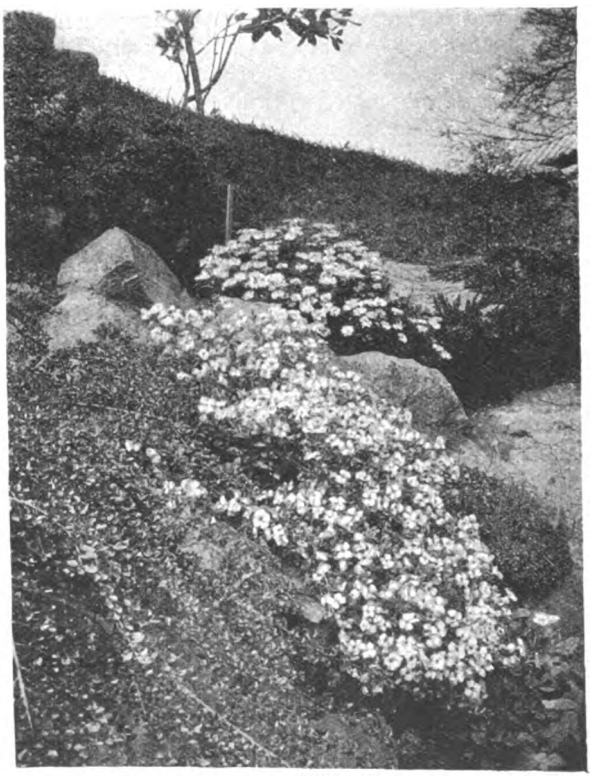
After the snowdrop time, a gracious thing pushed its way up. It had a low, ferny grace of leafage that seemed pleased with mixed weather. If a snow shower laid it low for an hour or two, it rose as if refreshed. Then, as the sunlight had its will again, there was a foam of tenderest mauve-pink, soft as a dream about the grim rock that nurtured it. That, too, the cottage gardener had gleaned from under a clump of hazels near the fabled site of the " Old Hall." Some of the plants, which sophisticated gardeners find hard to name, live on among us; but we do not give away their hiding places. Rare flowers are like a lady's honour, to be kept sacrosanct.

When that mauve splendour ended, the little cottage garden was brave with primroses and the oxlips known in the dale as " Saint John." Then the cowslips came, swaying to every breeze with maiden charm. And after them the bugle-flower, blue as a deep pool reflecting thunder skies.

To tell of that one rock garden is to lose faith in one's bigger spaces, tend them as one will. There are quantities of things we have; but somehow there is missing the completeness of that garden strip, where a cottager went to the hills for his rocks and for the plants that loved them.

There's another garden of this sort—just a strip between the house front and the highway. It is singular, not only for its succession of rich bloom, but for its favoured setting. As you come down the hill from ancient Linton-in-Craven into storied Burnsall, the scene baffles even tried affection's will to praise. First, the quiet church with its lych-gate. Then the grey, Elizabethan school, faultless survival from the spacious days. The raking fells above, and over them the moors that wive the sky.

The garden lies just beyond the school, and after years of intimacy its secrets puzzle me. Aubrietia is there, and London Pride, and friends of the sedum tribe. So is the dale's special garden pet, the pink primrose, and many another proven comrade. To pry into detail is well enough; but the broad effect of this way-side garden eludes explanation. It is, I fancy, that the tender of it has hands that work obedient to the heart, as a great musician plays. Out of the rocks and plants he draws their soul, in tune with his.



A WAYSIDE ROCK GARDEN.

A clown might sit down to the finest organ in the land, and make nothing of it. A casual gardener might build such a wayside strip as Burnsall's, and plant aright—but lacking the mystery known as " gardener's thumb "—and dust of the highway would smother his efforts in drear decay.

In the true sense of a word used lightly nowadays, this garden is a mystery. Dust covers it, whenever the sun licks up the rain from a road much frequented. In wet seasons, the traffic drives mud across its face. It makes the dust and wet a litany of colour, praising heaven. The " gardener's thumb " has planted it.

There is no end to one's memories of these pleasant, way-side challenges to the hurrying everyday. In a fold of the hills, where a grey village nestles, an old woman's cottage stands by the wayside. She had a cobbled strip between her windows and the road, and by removing a stone here and there has made a rock garden of her own devising.

The little, old-world musk flourishes there. Its fragrance, of leaf and flower, used to bring back the most subtle, half-forgotten things—boyhood's memories of old friends, old gardens, ancient trees in whose hollow trunks the starlings built. That was in the days before, from end to end of Britain, the creeping musk lost its fragrance—none knows why, though some wise elders remember a saying that " musk would cry its scent to death one day, in grief for sore trouble coming on the land." Its fragrance will return, they tell us, when the good days are in store again.

In other cobbled pockets grows that ancient of the dale, the dwarf bleeding heart. Feathery leaved, its stems a little

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drooping under weight of their red-pink blooms, it makes one marvel all afresh how close to nature lore the far-back people were who gave plants their country names. The shape of the flowers, their colour—the slight droop of the stems—all suggest a heart that bleeds with fine comeliness and pride, as for a dear one who died after a worth-while life.

Gentian grows there, too. It does not care that folk less humble than the widow are employing gardeners to compel this special, blue-eyed plant to thrive. They might as well command the east wind to blow, if its mind is not set that way. A maidish plant, capricious seemingly, she knows her heart, for all that. The gardeners she loves are her dear masters; the others see her die, for sheer joy in ending an abhorrent prison time. But when she thrives, as in the widow's cobble garden, you see a radiant charm, secure as deep June skies, not any way to be explained—either by pen or brush. She is simply the maid supremely happy, and the tears on her face at dawn are no more than dew-dreams of the night.

The strange thing about all gardens, big or little, is that they lure one into byways. What one set out to tell of this cobbled wonderland was not its sufficing beguilement and completeness, but the feud it brought to a dale that always had a relish for encounter with "foreigners."

This special zest comes, undoubtedly, from deep sources. We've been harried so abundantly in times past—by Danes from over the sea, by Scots from the far side of Solway river—that instinct resents intrusion, even the most peaceful.

What happened was, that the authorities of the far-off town decreed that the road passing the widow's cottage must be widened. On the other side of the road was a derelict barn, an eyesore and a danger to traffic. So the authorities chose that the cottage garden, innocent and quiet, must be sacrificed instead.

Then the long fight began. We simple country dwellers matched our wits against theirs, and we did as we willed with them, by a process of attrition both subtle and effective.

We won that strip of rock garden for the widow. Not long ago I saw the gentians in full bloom, and there seemed to be frolic humour in their glance.

THE FIRST HARBINGER OF SPRING.

JOHN RICHARD ANDERSON, J.P.

HIS GARDEN DIARY, 1745. A NOTE BY THE HAND OF DION CLAYTON CALTHROP.

(*Continued from page* 312.)

SEPTEMBER.— Comes Betty, one of my maids, a good lass, but ever over hurried, who tells me a gentleman is come to ask for me.

When she has recovered her breath I ask her what manner of gentleman this may be to which she replies, "A very fine gentleman, sir, as fine as ever I saw."

This proves to be my old friend Cornelious Brand, a curious fellow, who spends his days wandering.

I bid the maids to set a room in order at once, telling them Mr. Brand is to have the South room and every attention to his order as it were myself.

(Mem.: Silent men are always the greatest talkers.)

It is nigh on three years since I clapt eyes on Cornelious and here he comes and passes the time of day with me as it were we met but yesterday, and that with my garden in full autumn beauty, but he looks round and does say, but, "Great content," and drinks his bottle of claret sniffing at the bouquet and taking a pinch of snuff now and again to appease his nostrils.

After dinner, at which, please God, he was a hearty trencherman, eating stewed eels, the best part of a duck and twice of good mutton, he opens his mouth after half a bottle of port and tells me he is lately out of France and Italy, having walked like any mendicant.

"Lord, Jack," he says, speaking pat, 'I must give a guinea to your cook, and buss her, if she be comely, for that duck, for I am sick of kickshaws. I want no more of Italian oil or French vinegar for a long time and I trow, Jack, there are more eggs and less meat in France than in all the world. But, Lord, the mountains, man, I am grown to love mountains more than women, both change ever, but the mountains do not talk, both have infinite variety, but one is due to Nature and the other to fashion." (Note: To quote same in company.)

This friend hath a manner of speaking so vigorous that it puts life into a man to hear him, but he do fill my garden so full that it seems the very flowers pale beside him, yet we have many friendly silences withal. He loves big spaces, great trees, large dogs and healthy children and can charm a shy bird to come to him. (Mem.: In reading my chapter in The Book to-night I am minded of David and his great ways. Methinks Cornelious might put a man into the forefront of the battle. On second thoughts—"Judge not and ye shall not be judged.")

(Mem.: To ask Mrs. Heath how to make a Cornish Pasty.)

I had but to put a question here and there to keep the flow of his talk in a straight course, for he would speak of wars and flowers in one breath, but in all I did get the wind of his conversation to blow from the south.

"Lord, man!" he said to me, "Had I not spoke French as do the natives I might not be alive, but I do that and also took my brushes and colours with me and that is a visé with the French, for they conceive an artist to be a legitimate madman. In the South the people who live in the mountains are a simple, God-fearing people and they harboured me well.

"Lord, man! The spring! (Note: I will leave out his divers strange oaths.) And trouts do abound so that any man may have a good meal for the asking and the peasants say God put them in the waters for Friday s eating, which is a pretty thought in these Papists.

"In the pastures through which run these streams, and by the roadside, grow countless flowers, making your heart rejoice in their beauty. Of gentians, not a few, and the mealy primulas standing dainty with their feet in streams, and daffodils and the narcissi so plentiful that men scythe them: the white lily they call Saint Bruno, marvellous beautiful, together with Daphne and the Bears

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Grape Hyacynth. In such guise the feet of the hills are clothed so that a man may feel not so lonely in face of the great mountains covered with snow and ice, carrying man's thoughts to solitude. You have peace here, Jack, but what a peace is theirs!

"The meat grows at your elbow, the fish at your feet, corn sings in the valley where are coneys and a multitude chickens.

"In Italy, too, they have flowers, but not so richly set, and they eat a good dish of paste of flour with Tomatoes and cheese as good as a man can care for, but the wines are not so good, except one cares for the wine they call Chianti, very palatable!"

Talking and drinking we were till dawn and I none too tired yet, feeling I had travelled far in those hours and could feel the prick of the sun on my eyeballs. So when Cornelious had retired (I helping him to bed, he being merry and singing), I made myself a brew of lime flower water and betook myself into my garden, there to enjoy the solace of early morning and to hear the thrushes sing matins and to smell the flowers come fresh out of their sleep.

December.—Here is snow, very seasonable and plentitude of berries on the holly, which I like muchly to see, though some say it means a hard winter, which is cruel for the poor.

Last night for the first time this year I did have my warming pan in my bed and a fire of wood from the old elm which was blown down in the storm. It is sad, but it did provide me, not only with firewood, but with a good rook pie, many birds being shot by my groom, for which I did upbraid him; yet the pie was good (Mr. Smalley's method to cook a rook pie). Mr. Smalley, a sweet reasonable man and very delicate in all manner of food and drink and says a snipe and a woodcock must but fly through the kitchen and a Teal hung eight days. He told me also the manner in which false marrow may be made: to take fat of salted beef and cut it up very fine and serve with a toast of bread. Excellent good.

A sharper frost that men say has not been known in sixty years, the river frozen solid, and cattle found dead in fields and birds to the very doors of houses for water. In my garden abundance of starlings, tits, thrushes and blackbirds, which is cousin to a thrush, but not so sweet in song to my thinking, and yesternoon two reed warblers and a redstart come to eat of my bread and grain. These little servants of God move me mightily and I do thank God Who made provision for the recesses of our nature so we may rejoice in little things and look in awe at the magnitude of His creation.

To-day comes an old man for years a worker in my water meadows, ten years crippled with the Rheumaticks and now upright and would wish to work again. He took but an old wives' tale that he must sting himself with bees and did so and now all his pains are gone and I did marvel, but there it was.

Thank God for the Cordials I caused to be made last year, so now I have abundance of Elderberry, Cowslip and Ginger Cordials, also Plum, Crab Apple and Damson Cheese. My cook hath also preserved red and white currants in sugar, which make elegant dishes to grace my table.

Seventeenth.—Hear to-day of a matter now laughable, but was like at one time to be nigh tragical. One Coles, a plover netter, essaying to pass over the ice by Hoplode Drove, did fall in and was near to drowning, being full of strong ale, but his dog, seeing the affaire did turn his posterior to his master and by barking showed him how he might use his tail for a rope, so he was saved and the dog none the worse.

(Mem.: To cure a whitlow, an onion very hot bound tight about the place.)

Comes my bailiff to request me to see what he hath fatting for Christmas, and a good sight it was, though in a manner pitiful for the birds and pigs. I have twelve geese, of which I give ten away, as usual, also four pigs, very fat, seven ducks and a few capons.

As God, through my fathers, has given me plenty, it is well to give in plenty, so I bade my cook to make twenty cakes, very rich, for the poor of this parish and to kill three of the pigs to make a feast with a cask of ale. (To give kindling also?)

In my fruit house now a great abundance of apples and many winter pears, together with herbs now well dried. My frames do still yield me a salad and I have good store of potatoes.

Mem.: Mrs. Hornblower hath told me to fry some potatoes in bacon fat and keep them and to warm them when need be for a side dish: also to keep peas in a bottle and preserve them green.

My garden now under a mantle of snow and my bee skeps with old cloth about them, so my bees shall not perish.

Later.—The church choir to visit me with carols of that good King who did look out on the feast of Stephen and many others. Mighty pretty to see and to hear, with lanthorns gleaming on the snow and the cobbler playing on his fiddle.

The year is nigh gone and my garden is trenched; my fruit is now turned in the fruit house, the apples in good order and none bruised or sweating. Of Pears my baking and roasting pears, especially French Wardens, do excel, being covered with straw against the frost. The Bergamot, very good to eat now and full of juice. Even the great frost and snow have not burst my Fountain pipes and only one of my water barrells hath burst its hoops.

Much merriment of Mummers who made the old play for me before the house and then asked in and ale given hot with sops of toast, the Dragon and St. George taking ale together most friendly and singing an old catch older than their father's fathers. Then a bowl of good punch (Sir Andrew Orvell's recipe). We drank to Absent Friends and they did make much of me in a speech spoke by an old man, Giles Orton, very prettily put and with much mirth, so I left him and went to wind my clocks.

THE CULTURE OF CALANTHES

DURING the winter months, especially when the bulk of the chrysanthemums are over, flowers are none too plentiful, and it is at this period when a good batch of calanthes would be found most valuable. They are excellent cut flowers, as they will last for two or three weeks with care and attention, while as decorative plants for the dwelling house they are ideal, particularly if arranged with a few ferns. Moreover, they are easily grown and no one need fail in their culture.

Wonderful progress has been made in the cross-breeding of orchids since the first hybrid appeared in bloom in 1856, but it is remarkable that Calanthe Veitchii, which was raised about the same time is still the most popular and widely grown of the genus. It is derived from the inter-crossing of C. rosea and C. vestita. C. Veitchii possesses a robust constitution, free flowering and the bright rose-coloured blooms on gracefully arching spikes are at their best in mid-winter. A fine pure white calanthe is C. Harrisii, but this hybrid is not quite so common as Veitchii and a little more expensive. Other hybrids are named Bryan, Wm. Murray, and Bella, while the principal species is C. vestita and its several varieties. A late-flowering calanthe is C. Regnierii.

At the present time the calanthes have finished flowering and the bulbs are at rest in a temperature of about 50° Fahr. Both species and hybrids should be re-potted directly they start into growth. The bulbs are turned out of their pots, all the old soil is shaken away, and the roots which are dead are cut back to within an inch or so of the base of the bulb. At this stage the bulbs must be thoroughly cleansed if scale or mealy bug is present, with a sponge and tepid water. Ordinary clean flower pots from 5ins. to 7ins. in diameter are chosen, and these are filled one-third of their depth with drainage material, over which is placed a thin layer of moss to secure a free outlet for water. The rooting medium consists of two-thirds the best fibrous loam, and one-third peat and partly decayed oak or beech leaves, with a little sand or finely crushed crocks added. All the dust or fine particles are removed from the loam and peat, both being used in a lumpy state about the size of a large walnut, while the leaves are rubbed through a ½in. mesh sieve, and afterwards the dust is sifted out, leaving a light, flaky material which many orchids enjoy. The whole is well mixed and placed in a warm shed for several days before it is required.

Some growers pot the bulbs singly, a method to be commended if space is available, otherwise several bulbs can be arranged in a fairly deep pan, 7ins. or 8ins. in diameter.

An average size bulb will need a 5in. or 6in. pot. The compost ought to be made fairly firm and brought to within

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an inch of the rim of the receptacle, but care must be taken to see that the new shoot is not buried. It should rest on the compost when the new roots will soon enter the soil. When the repotting is completed, stand the plants in a shady part of the cucumber house, stove or warm orchid house, where the minimum temperature is 60° to 65° Fahr. With sun heat these figures can be exceeded and no harm will accrue. For the first few weeks water must be afforded sparingly or the new shoots will decay, but the surroundings are kept moist by occasionally sprinkling water on the floors and stages.

When root action becomes vigorous, and the leaves begin to unfold more water can be applied, and directly the new bulbs are formed weak liquid cow manure may be given once each week with beneficial results. During the growing period a moist, buoyant atmosphere is needed, and a little ventilation should be given whenever the weather is mild. Ventilation is important throughout the summer months, and it is advisable to leave the top ventilators open an inch or so during the night. This will allow any superfluous moisture to escape, and thereby prevent the appearance of the black spot disease. In the early stages of growth shade will be needed from strong sunlight, but when the bulbs are nearly completed the plants can be gradually inured to the full rays of the sun. When the leaves begin to fall less water is required, but the soil must be kept just moist until the spikes begin to open their flowers.

At this stage the plants are arranged in a warm greenhouse where the atmosphere is dry, where the bloom will remain in full beauty for several weeks.

Directly the spikes are cut the bulbs undergo a period of rest of several weeks duration, when no water is given. Place the pots on a shelf away from drips in a house where the temperature does not fall below 50° Fahr. If space is scarce or the pots are wanted, the bulbs may be turned out of their receptacles, the soil removed, and the bulbs arranged close together in boxes with their bases set in silver sand.

Now is a suitable time to purchase calanthe bulbs; they are dormant, need less packing and the cost of carriage is thereby considerably reduced. T. W. BRISCOE.

NOTES OF THE WEEK

A FEW UNCOMMON PLANTS.

THE dasylirions are a race of plants seldom met with outside botanic gardens, but they are well worth a place in gardens where suitable conditions prevail for their growth.

There are several varieties, and all are ornamental. Nicholson describes them as greenhouse evergreens, and in the colder parts of the country and in those gardens which lie low and are naturally wet, they certainly will require indoor treatment. They are natives of Mexico and belong to the order liliaceæ.

An ideal position for dasylirions is on a hot, dry bank or in the crevices of the rockery, where they will get the sharpest drainage during the winter; they will stand several degrees of frost with impunity, always providing their roots are dry. Winter dampness is fatal to them.

D. serratifolium is one of the best and, when established, is very ornamental indeed. The foliage is graceful and similar to a narrow-leaved yucca, indeed the whole plant somewhat resembles a yucca, but the foliage droops gracefully, the tips of the outer leaves touching the ground. Flower spikes 3ft. to 6ft. in height are produced bearing upon their upper half dense panicles of beautiful white flowers. Other good forms are D. Hookeri, with purplish flowers and glaucous foliage; D. glaucophyllum, white flowers and long, narrow leaves, 3ft. to 4ft. in length. Another small group of plants seldom seen, but somewhat hardier and, if anything, more showy, are the aciphyllas, or bayonet plants of New Zealand.

The aciphyllas will flourish in ordinary soil, in sheltered positions in the southern half of England and the favoured districts of Scotland.

A. Colensoi is the variety mostly, though rarely, seen. This will make a grand specimen and will reach 6ft. to 8ft. It has beautiful, erect, bayonet-like foliage, the upper portions being beautifully tinted with rosy shades of pink passing at the tips to flame colour. The flower stem reaches 9ft. to 10ft. and is covered with smaller leaflets and white flowers. Another variety is A. squarrosa. A plant of A. Colensoi seen in full beauty is not easily forgotten.

Still another group, requiring treatment somewhat after that recommended for the dasylirions are the furcræas. Most of the species come from Mexico and a few have proved hardy in dry and sunny positions in southern England and Ireland. A plant of F. longæva flowered in a Plymouth garden last year.

The furcræas are evergreen plants with long and broad pointed foliage not unlike that of some of the yuccas. This, in itself, is pleasing, but the full beauty lies in the towering flower spikes, which in F. longæva has been known to reach the height of 40ft. Truly a magnificent spike. This variety is closely followed by F. gigantea, which will reach a height of 30ft.

Some of the hardiest and at the same time most ornamental are F. cubensis. This variety bears flowers which are of a greenish white and bright green foliage, armed on the edges with prickles. F. elegans makes a spike up to 20ft. and bears flowers, white, tinged green, foliage 4ft. to 6ft. in length, with few or no prickles. F. gigantea: this is as hardy as any, and I consider the most showy variety, it soon becomes established and makes a grand specimen, the flowers are milky white inside and stained green on the outside. Foliage sometimes reaches 6ft. in length and with age the plant forms a thick trunk 3ft. or more in height. F. longæva is altogether the tallest, with greenish white flowers and will also form a trunk some feet in height, crowned with foliage 4ft. to 5ft. in length. There are several other varieties. —J. HILL, *Paignton*.

AN AMATEUR'S TOMATOES.

MANY people are unusually shy of their fine tworks, so, bearing in mind the Editor's request to hear from amateurs, I have taken the opportunity of having the excellent results attained by one of them photographed, for, with an absolute minimum of garden—which, incidentally, only comprises narrow borders around his house—I think his efforts most praiseworthy. He is a Mr. George Tucker of Aldenham, and he has devoted his special efforts to tomato growing, and the accompanying illustration will tell the tale perhaps better than the pen. Early each season he gathers together a number of suitable tubs, cleans and paints them, and, having inserted his plants, he tends these with a cultural skill that every year yields the excellent crop shown. The plants are grown in their tubs, at the foot of the south-west wall of his house. Carefully staked, trained, and top-dressed as required, these plants are really a wonder, and at the time that the photograph was taken, one of the trusses on a yellow-fruited plant carried no fewer than sixteen good fruits, while a red

TOMATO-GROWING IN TUBS.

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variety had seventeen; on a whole plant we found that on six trusses of a yellow variety there were a total of fifty-four fruits; and a red sort, carrying five trusses, had a burden of forty-eight fruits—figures that speak for themselves. So carefully tended were the plants that, far from showing any sign of exhaustion, they looked in the very pink of condition. This annual effort may well serve as an object lesson to many as to what can be done in the space of a few square feet.—E. BECKETT.

LONICERA SEMPERVIRENS.

THIS species, to my mind, is one of the finest of the genus. We raised it here from seed obtained direct from its home in eastern Canada two years ago.

This year it commenced to bloom in May, and the flowering period has extended from then until the present time. Even now, its lovely coral red flowers are available for cutting. These, unfortunate'y, lack fragrance, but its absence is made up by the brilliant colours of the flowers.

We find it very free in almost any position, although it prefers a moist sunny situation. The flowers are followed by attractive orange berries.

This honeysuckle should find a home in all gardens, if only for its long season of flowers. —R. MOORE, *Thorpe Hall Gardens.*

ANNUALS OF GOOD REPORT.

IN the autumn, as first one and then another blossom disappears from the garden, we are inclined to contemplate those which have served us best. Not the least important in these days are annuals, many of which add considerably to the attraction of the beds and borders. Some, however, are inclined to look upon them as of only secondary importance, well enough, perhaps, in masses, yet never treating them as individual plants; consequently, they are not always able to appraise them at their right value. It would, I think, be interesting to know what are generally regarded as the most useful annuals—hardy or half-hardy—from the point of view of all-round service in the garden, and for cutting. It has always been somewhat of an enigma to me to find that the same kinds of annuals are grown year after year by the same persons, almost leading one to suppose that, for some reason or other, the owners of the gardens are limited in their choice or are conservative in their ideas.

Possibly, if we were asked to name one dozen annuals noted for their all-round usefulness, we might find a difficulty in doing so on the spur of the moment. For the rock garden, for sweet perfume, for bringing colour to the borders, and for cutting for table decoration, I select those (without order of merit) which have given satisfaction: Sweet peas, eschscholtzias, mignonette, larkspurs, calendulas, sweet alyssum (Little Dorrit and Lilac Queen), antirrhinums (treated as annuals), sweet sultans, nigella, statice, Matthiola bicornis and clarkias.—W. F.

CHRYSANTHEMUMS AT OTTAWA.

THE accompanying illustration shows a corner of the Chrysanthemum Show at the Canadian Government Central Experimental Farm, Ottawa, now one of the annual events of the Dominion. Over three hundred of the best varieties (the result of the experimental work of the Horticultural Division) were brought together, and these 3,000 plants shown at their best made a magnificent display which attracted people from far and near. The feature of these exhibitions is the great variation in size of flower, form and colouring. New varieties originated in the Ottawa greenhouses include Lady Byng, J. H. Grisdale, E. S. Archibald and J. R. Booth.—CANADIAN OFFICIAL PRESS BUREAU.

A FINE DISPLAY OF CHRYSANTHEMUMS.

CURIOUS PLANTS.

THE Editor, in a recent number of THE GARDEN, declares his appreciation of succulent plants with a firmness as admirable as it is uncommon. For most people who grow and like these plants are apologetic for their taste, nervously anticipating the criticism "more curious than beautiful" that hovers on the lips of the visitor.

Yet the cacti are often beautiful in their symmetry of design and the graceful ferocity of their armature, and beautiful also in the delicate brilliance of the flowers that sprout so unexpectedly from their stony contours. Even when the succulents have none of these qualities, but have been warped by adversity out of all likeness to a plant till they look like elephants' feet or gallstones or cricket balls, they are still admirable for their singularity and their triumphant adaptation to conditions in which no ordinary plant can live.

These plants, which can thrive in the Kalahari Desert on little soil and less water, must be nearly as thrifty as the lichen which hangs in festoons from the telegraph wires in Rio de Janeiro, and we hope that they will flourish bravely in the Editor's London flat; where, if one may venture a suggestion, they will probably appreciate the violet rays which are given out by certain special types of electric light bulb.

For the gardener in the country there are many plants worth growing which are curious in another way. Not for their strange form, but for their singularity in breaking away from the traditions of their family. A mere departure from the type is not inevitably interesting except to botanists, but many of such plants have acquired a strongly marked individuality which will recommend them to the ordinary gardener.

There is a plantain which has strayed up into the mountains, or been stranded there, and become as white and woolly and aristocratic as any of the high alpines in whose company it sometimes worthily finds itself in the rock garden. Farrer describes a dandelion which grows "beside the glaciers of Kasbek" and there produces flowers of an intense violet purple. It would make an interesting companion for the plantain, if we could get it, though one may doubt whether a dandelion, however purple, could be really beautiful, for the habit of the flower is as dowdy as the elfin architecture of the seed heads is refined.

The common dock is a statuesque plant and the spires of russet seeds are beautiful in the autumn pastures, but I have never had the courage to experiment with it in the garden, though its relative, Rumex flexuosus, has an undisputed place there. This is not a showy plant; indeed, it is difficult to see it at all except at close quarters, but the snuff-brown of its dull, wrinkled leaves is unlike any other colour in the garden. It is sometimes called the "drunken dock," because its stems lurch about in uncertain zig-zags and often flop prostrate on the ground. It is almost unnecessary to say that this oddity comes from the Antipodes.

From the same land of inversion comes Hymenanthera crassifolia, a relative of the violet which grows into a small woody bush; this again is not a showy plant, but it calls attention to itself by having piebald berries.

The butcher's broom does not invite attention in any way and seldom gets it, living dourly under the shade and drip of trees, where, owing to a Calvinistic habit of segregating the male and female flowers to separate plants, it often forms celibate colonies and fails to produce the blood-red berries which are its sole attraction to the eye. Yet it belongs to the Liliaceæ, a family rarely given to self-effacement. For the botanist it has the distinction of being the only native monocotyledon with a woody stem; and even the casual observer may be interested by the odd position of its minute greenish flowers, which seem to be stuck on to the middle of the leaves, though the botanist will explain that the butcher's broom has no leaves but only flattened branches which do duty for them.

There is a myrtle that has become so prostrate by living in the wind-swept Falkland Islands that it looks like a woody little thyme and is quite hardy in England.

There are many other plants which have struck out a line of their own: Aquilegia viridiflora has the fantastic grace typical of all the columbines, and its strange tones of green and chocolate are a development not altogether unexpected from the family's

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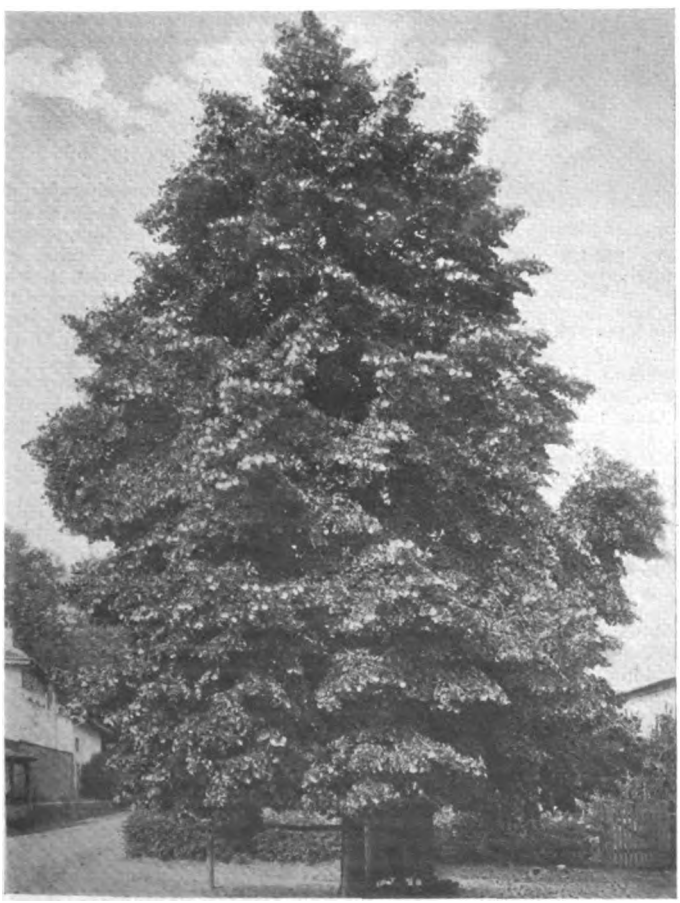
slight tendency to sombre colouring, but it is quite individual and peculiar in a strong, sweet scent that faintly recalls the heavy fragrance of Daphne Mezereum. And there are giant groundsels like Senecio Clivorum, grey groundsels like S. Grayii, pigmy gunneras, pink gentians, violet forget-me-nots and yellow campanulas. From all of which the ordinary gardener will probably turn, with a certain relief, to the frank and unsurprising charm of his sweet peas and lupins—from which, it can be hoped with perfect confidence, his affections will never be permanently seduced.—F. A. H.

AN INTERESTING HYBRID LINDEN.

AMONG the forms of tilia which I have seen from time to time at the Simon-Louis Frères nurseries, near Metz, was one which was called T. orbicularis. It had been raised from a seed of the so-called pendent silver lime, T. petiolaris. The tree, although it much resembles T. petiolaris, is said to be a hybrid between pedicellaris and the Crimean linden, T. euchlora. The leaves of the hybrid are not so silvery beneath and much more lustrous green on the upper surface. This and the whole aspect of the tree suggest the influence of euchlora. T. orbicularis is certainly a fine tree and ought to be more often seen in our gardens.

Both of its parents are valuable trees, and of great interest from the point of view of their real origin. The Crimean linden is regarded as a hybrid of the Caucasian linden, T. caucasia, or as it is called now, T. rubra, a widely spread Oriental species, and our common small-leaved lime. The true T. rubra, which apparently is a rather variable species known under various names, as corinthiaca and multiflora, seems not to be in cultivation at all. T. euchlora probably originated as a spontaneous hybrid somewhere in Trans-Caucasia or the Caucasus, and was introduced from this region about sixty years ago. It goes under the name T. dasystyla, but the true dasystyla is a variety of rubra and may be the real parent of euchlora. This is certainly one of the best linden trees used on the Continent, but, according to Bean, quite uncommon in Great Britain.

The other parent of orbicularis, the pendent silver linden, T. petiolaris, is a rather strange species too. It is closely allied to the white lime, T. tomentosa or T. argentea, often also called T. alba. This is a well known, handsome tree from eastern Europe and Asia Minor. In some parts of southern Hungaria and the Balkans it is apparently mixed with or partly represented by T. petiolaris, known also as tomentosa var. petiolaris or alba pendula. While T. tomentosa has a rather stiff, pyramidal habit, at least on younger plants, the branches are somewhat pendulous, but not really weeping, and the tree forms a more round topped head. Both lindens have silvery white leaves, and are of great beauty.



THE HANDSOME HYBRID LIME, TILIA ORBICULARIS

Another interesting hybrid of which one of the two species is a parent, is T. spectabilis, apparently a cross with T. americana. It originated together with S. Moltkei, which is very similar at Spaeth's nursery at Baumschulenweg, near Berlin, and a similar form was raised from seed of petiolaris at the Arnold Arboretum.—CAMILLO SCHNEIDER.

MAGNOLIA ACUMINATA IN ALL ITS BEAUTY OF FLOWER.

THE CUCUMBER TREE.

AMONG the various kinds of magnolias that are grown in central Europe, there are only two species that form large trees. One is the Japanese M. hypoleuca (representing the true M. obovata of Thunberg, a name hitherto wrongly used for M. liliiflora or M. purpurea, or even for M. denudata), and the other, the North American M. acuminata. This last species was introduced to Europe nearly two hundred years ago, and there are some very fine old trees in different places on the Continent, as well as in Great Britain. When I was staying in Vienna, I often visited the well known park of the Duchess of Ratibor at Grafenegg. Here I took the picture of part of a richly flowering tree of M. acuminata, which measured about 60ft. in height. The flowers which appear late in May or in the beginning of June, are not very conspicuous, but looked at at a distance are quite charming, of a somewhat glaucous greenish yellow. They are slightly fragrant. Its common name, cucumber tree, is in allusion to the shape of the fruits, which, however, only remotely resemble a small cucumber, and are dark red when ripe. According to Britton it inhabits the slopes and borders of streams from western New York and southern Ontario to Illinois, Arkansas, West Virginia, Georgia and northern Mississippi, sometimes forming forests. In central Europe it does not do so well as the Japanese hypoleuca, but it is a good tree for the park.

M. hypoleuca was not introduced until the middle of the 'eighties of last century and consequently there are not many large specimens throughout the country. Years ago it was supposed to be quite a valuable forest tree in central Europe, but some of the foresters, like H. Mayr, apparently expected too much of it. As a park tree it should be planted much more, and Mr. Bean is right in calling it one of the most striking and beautiful of all northern trees both in leaf and in flower. The latter appear even somewhat later than those of M. acuminata; they are large, cup-shaped, measuring up to 6ins. across. The purple stamens and golden anthers look extremely fine between the soft, creamy white petals, and the scent is very strong and agreeable.

There are even finer late-flowering magnolias, like M. Watsonii, but they are by no means as hardy as hypoleuca. This species is used as stock in Japan, and M. acuminata is likewise a good stock. Both like a good, deep, well drained, but not dry soil. No magnolia should be planted in poor ground, but if this has sufficient moisture and is enriched with fresh loam, the tree thrives well.—C. S.

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THE LAST SHOW OF THE YEAR

THE Royal Horticultural Society held its last fortnightly meeting for the year on December 15th last, when there was a small but fairly representative collection of floral exhibits, considering the time of the year and the hard weather conditions. A touch of colour here and there was provided by the chrysanthemums and cyclamen, supported by the darker tones of rock garden shrubs. Garden sundries, however, were again the principal feature, and these most certainly make up in interest what perhaps they lack in appearance and attraction. During these days, when gardening duties are at their ebb, the gardener should make himself thoroughly familiar with all the various items which go towards making work in the garden a real pleasure instead of a toil. It will be to his advantage later on.

Not so long ago we congratulated Mr. Edwin Beckett, gardener to the Hon. Vicary Gibbs of Aldenham, on an exhibit of berried shrubs which he staged at the Hall. Again we must do so for his fine collection of shrubs as they appear in the garden in winter. Bereft of their summery cloak of foliage, many of our shrubs, especially those introductions from North America and eastern Asia, are of outstanding beauty. Their grace of line and beauty of colour have only to be seen to be appreciated. In the exhibit, which was admirably arranged, were to be seen many representatives of the willow family, such species as S. vitellina britzensis, with its long, deep blood red, whip-like branches; and the Babylonian willow, with its slender dull yellow stems, were prominent. The brilliantly coloured dogwoods were there in variety and served to show to the uninitiated their value as decorative subjects in the garden at this time of the year. The bronzy red hues of the many berberis species were also to be seen and considerably added to the appearance of the stand. Other interesting inclusions were Philadelphus coronarius, whose beauty in winter is rarely seen; the curiously twisted Corylus Avellana contorta; the spiny Ægle sepiaria; Tilia platyphyllos, with its characteristic symmetrical glowing dull red stems bearing closely adpressed polished buds of the same hue; the knotted bamboo-like stems of Polygonum polystachium; and last, but by no means least, many varieties and species of the Rubus family, with their pure white stems, as if they had been severely frosted. As well as being an exhibit of the utmost attraction, its chief merit lay in its educational value, as all shrub-lovers who saw it no doubt realised.

Chrysanthemums and carnations were again the chief floral exhibits at the Show. Particularly fresh and of good form were the chrysanthemums shown by Mr. A. G. Vinten. Some fine single varieties, such as Harmony, Bronze Molly, Mrs. W. E. Cadlow, Kathleen May and Robert Collins were included in his well arranged exhibit. Two good new singles, also shown by this grower, were Eleanor and Challenger. Mahogony, an incurved Japanese variety of uncommon colouring, Favourite and Golden Butterfly were also noticeable. Messrs. Keith Luxford had a small exhibit of chrysanthemums, the best varieties being J. Barnell and Mary Morris. Messrs. Sutton and Sons again showed seedling chrysanthemums in all colours. Chrysanthemums were also exhibited by Mr. W. Brown and Mr. A. Young.

Large groups of carnations were arranged by Messrs. Stuart Low and Co. and Mr. C. Engelmann. The latter firm showed many varieties, including Rouge, Red Laddie, Nero and Improved Ward. Several new carnations were noted on the stand of Messrs. Stuart Low and among them were Sybil and Mary Pearson. Fine blooms of Orange Sunstar, Lady Hindlip, Sheila Greer and Mrs. Hamilton Fellows were most attractive. Messrs. Allwood Bros. exhibited Allwoodii and perpetual-flowering carnations.

All good alpine plants are, rather enviably, dormant in December, but the rock garden need not be without interest even in the depth of winter, as Messrs. Maxwell and Beale showed with a garden of winter flowering heathers, mostly varieties of Erica carnea, whose scorched pink is more telling against the snow than in the smoky light of Vincent Square. Behind them was a wood of dwarf conifers and a dwarf deciduous barberry, dyed scarlet by the frost.

Messrs. F. G. Wood of Ashtead showed their well known miniature rock gardens for the table, 6in. mountains clothed with silver saxifrage and bronze stonecrops—tempting Christmas presents.

THE SEMI-DROOPING BELLS OF LACHENALIA BOUNDII.

Among the other exhibits were the following:

FRUIT.—Messrs. Bunyard and Co.

ORCHIDS.—Messrs. Cowan and Co., Sanders, Stuart Low and Co., and Captain Drummond.

SHRUBS.—Messrs. John Klinkert and Wilson and Agar.

MISCELLANEOUS PLANTS.—Cyclamen, Mr. A. Shambrook; foliage plants, Messrs L. R. Russell and Co.; gesneria hybrids, Lady Mond; hardy plants, Misses. K. and E. Hopkins; miniature garden, Miss G. Howse.

ARTISTS.—Misses E. Andrews, A. Aumonier, M. Broom, H. Parry Okeden, W. A. Raab, H. Spenser, M. M. Townsend, W. Walker, E. Whitelegg and A. F. Wilkinson.

NEW AND RARE PLANTS.

AWARDS OF MERIT.

LACHENALIA BOUNDII.—This form, a cross between L. pendula and L. rubida, represents a new break in lachenalias by flowering at Christmas-time, and as such will undoubtedly prove a great acquisition as a florists' flower. It stands more or less midway between its two parents as regards its characteristics It is robust in habit, and the flowering stems vary from about 8–12ins. in height. The flowers, of a delicate warm red colour softened by a trace of yellow with greenish tips, are drooping or pendulous, at least the lower ones. Shown by Messrs. Bound and Son, Redhill.

CARNATION MARY PEARSON.—The medium-sized blooms of this variety, borne on fairly stiff stems, are of a peculiar shade which might be best described as puce-coloured. The flowers have a delicious fragrance which will sway many in its favour. Shown by Messrs. Stuart Low and Co.

CARNATION SIR ALFRED MOND.—The medium-sized and well shaped blooms of this variety are of a glowing scarlet colour, and are well carried on long upright stems. It should prove admirable as an exhibition variety. Shown by Lady Mond, Melchet Court.

CHRYSANTHEMUM OMEGA.—A medium sized Japanese incurved variety of a light yellow to bronzy hue. The colour is good, but the shape of the blooms shown was not quite perfect. Shown by Mr. H. Shoesmith.

CHRYSANTHEMUM BIANCA.—An excellent variety of a pleasant light ruddy tone with a yellow reverse to the florets. The blooms are flattish and medium in size. Shown by Messrs. Cragg, Harrison and Cragg.

CHRYSANTHEMUM PHRYNE.—This variety should win its spurs as a market flower. The blooms are compact, firm in texture and of medium size. The colour is delicate pure pink and rather attractive. Shown by Messrs. Cragg, Harrison and Cragg.

CHRYSANTHEMUM ZENITH.—This is a large single variety, the blooms being about 3½ins. across. The ray florets are of a bright brick red tone fading to a sulphur yellow towards the cushion, which itself is of a dull yellow. Although striking in colour, it is not exactly attractive. Shown by Messrs. Keith Luxford, Harlow.

ORCHIDS.

AWARDS OF MERIT.

SCUTICARIA STEELII.—The handsomest of the scuticarias as regards the flowers, and interesting on account of the cylindrical, fleshy leaves about 3ft. in length, which are quite pendulous. The flowers are nearly 3ins. in diameter, light yellow, spotted with red-brown, the fleshy crest of the labellum orange-yellow. It was introduced from Demerara in 1836 by Mr. M. Steele, and was subsequently found by the Brothers Schomburgk during their exploration of British Guiana, 1840-44. The present example bore a couple of flowers, larger and finer than the usual type. Shown by Sir Herbert S. Leon, Bt., Bletchley Park, Bucks.

CYPRIPEDIUM THE PRINCESS (Alcibiades × Alcineda).—A distinct flower of large size, in which the dorsal sepal is greenish, with a broad white zone on the apical region, and with small dark spotting evenly distributed over the whole segment; petals yellowish, tinged with mahogany and veined with red-brown; labellum yellowish, stained with mahogany-red on the front area. Shown by Messrs. Armstrong and Brown, Tunbridge Wells.

CYPRIPEDIUM CARDINAL MERCIER.—Full parentage unrecorded, but a hybrid of C. Lathamianum. The broadly formed dorsal sepal has the greater part of its area flushed with crimson-purple, the broad petals deep-yellow, almost covered with red-brown and some venation of a darker colour. The whole flower presents a glossy appearance. Shown by Messrs. Armstrong and Brown, Tunbridge Wells.

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CORRESPONDENCE

TREATMENT OF DIERAMAS.

SIR,—I was much interested in the article on Dierama pulcherrima in a recent issue of THE GARDEN. Could any of your correspondents tell me their experience of growing this plant? Does it do best and flower more quickly from seed or from transplanted seedlings? What soil and situation would be best suited to it?—M. S. E., *Cirencester*.

DECORATION OF GARDEN PATHS.

SIR,—In the issue of THE GARDEN of December 12th may I suggest that the photograph of some garden "steps" on page 697 was mis-titled. Should not the title to this photograph have been "The Step Garden," and ought there not to have been a notice above and below intimating that visitors are requested not to use this "step-way" as it is a garden and not "steps" in the ordinary sense? The titling of these "steps" seems to me rather departing from the teaching of your valuable contemporary *Country Life*.—E. H.

NERINE BOWDENI.

SIR,—In reply to "R. H.'s" enquiry (page 707), Nerine Bowdeni flowered here this year with its accustomed freedom in the open during September and October, continuing until stopped by 10° of frost early in November, whereby many unopened flower-buds were destroyed. I suppose one ought to know who was or is Mr. Bowden, but I do not. He is distinguished by having his name associated with one of the loveliest of the amaryllis family.—HERBERT MAXWELL, *Monreith*.

HOLLIES AND MANURE.

SIR,—I have a Silver Queen holly which has been for the best part of a century growing in full sun. For years small bits have been taken from it for our Christmas decorations, and "the enemy" has taken liberally from it also, the result being the dwarf plant has never made a really good growth. About two years ago I had it well mulched with rich manure, and in a few months it responded by throwing up a vigorous growth, now about 10ft. high. This has been a satisfactory surprise to me.—J. HILL POE, *Nenagh*.

ERITRICHIUM NANUM.

SIR,—Referring to the subject of Eritrichium nanum in your correspondence columns, November 28th, page 676, signed A. Gavin Jones, it is with great disappointment that one reads of such a gem as Eritrichium nanum being described in colour as blue, sometimes running into dull pink. Up to the present I had, personally, never dreamt that eritrichium could do such a thing, so different from its universal reputation, of being one of the loveliest of alpines and of the most brilliant azure blue. I have never been fortunate enough to make the plant's acquaintance in its native haunts, but have, nevertheless, enjoyed seeing several plants in flower in captivity; but have never seen them anything but a wonderful blue. Even tiny, puny, half-dead specimens have yielded their real beauty of colour. These, at least, would have been the likeliest not to have gained their utmost brilliancy. Again, why have not our most prominent and experienced authors on the subject put us up to it before. Each book of reference describes the colour as being azure blue, but not the slightest mention of a "dull pink"; in fact, M. Correvon says that the plants when in flower are an unbroken mass of blue. It would be very interesting indeed to hear if other people have noticed a variation in eritrichium's colour. If this is general, why then attempt to grow the plant, as I daresay the sight of its almost unrivalled blossoms are the point of value the plant possesses; but no doubt many of the specialists in alpines grow it because it "requires growing," and it is, no doubt, something to be proud of when one can say they have a choice well established plant of Eritrichium nanum in flower. The descriptions of the plant in your issue lead one to wonder was it really eritrichium at all that the author saw. Was it not a dwarf myosotis of some kind, as these do so definitely vary between the shades of blue and pink. The illustration also does not show very clearly that it is the true eritrichium.—F. BARKER.

MULCHING.

SIR,—Most gardeners will agree with your correspondent, page 691, as to the injurious effects of heavy, dense mulches, under which the soil apparently becomes poisonous to root action, because of non-aeration. Vine borders, raspberry and rose beds are often covered thickly with farmyard manure, and in some cases this is left unstirred or unmoved for the greater part of the season. It is little wonder, then, that the grapes "shank" and the raspberries refuse to make satisfactory growth, and many rose plants die out entirely. But do not let us go from one extreme to the other. I am sure that a good cultivator like Mr. Coutts would not wish some of our amateur friends to think that a mere sprinkling would have much value as a mulch. On the other hand, his advice may be regarded as sound when he says it should not exceed 3ins. in thickness. Provided there is enough of it, a greater depth is not of so much consequence, but it is necessary that it should not lie sodden and inert. In natural woods rhododendrons are often mulched by wind-driven leaves to a depth of 12ins., apparently with much benefit to the plants, but the mulch is being constantly turned over; blackbirds and thrushes are adepts at the business. The advice to stir the soil several inches deep with a digging fork before applying the mulch is good for most plants, but many rhododendrons have their feeding roots in the 3ins. of soil nearest the surface, and they might be considerably injured by the upheaval.

If the soil is not already filled with rootlets, every endeavour should be made to carry out the advice given in the last two paragraphs, *viz.*, to keep the surface stirred to a depth of 3ins. all the summer. The novice, unfortunately, begins this work too late, when the surface has become hard, and is soon discouraged at the impossibility of the task. Wherever a tilth is necessary, the soil should be forked to a depth of 3ins. at least in winter, carefully burying all annual weeds. Pulverised by rain and frost it will later be in such a condition that the Dutch hoe or other cultivator can be used with advantage before it becomes hard. Once a good tilth is obtained and kept, its value can hardly be over-estimated. It is not only a protective covering against drought, but the action of sun and air greatly improves the soil for the next crop.—J. COMBER, *Nymans Gardens*.

VOLES AND FIELD MICE.

SIR,—The destruction wrought by these pests in rock garden, border and woodland has been so great, especially during the past year, that I am wondering if any reader of THE GARDEN has discovered anything by which their numbers can be reduced. Few rodents are more easily caught by nipper traps baited with a little bacon fat, or merely placed in the runs, but this means becomes wholly impracticable when the pests come in battalions, and it involves the death or suffering of birds. One is also aware of the sunken pickle jar or biscuit tin (so suavely recommended the other day by a prominent daily paper), but imagine sinking biscuit tins in a rock garden! Further, I have yet to meet the mouse which is fool enough to leap into any pit of that sort. Poison one has a natural disinclination to use, lest birds and cats (which would be liable to eat the poisoned corpses), are also destroyed, but it appears to me that the only hope of release from these enemies lies in that direction. Viruses, I am assured, are not altogether satisfactory and they are said to involve some of the risks of poisons.

When I say that large groups of shrubs, such as brooms, 8ft. high, have been destroyed by barking, that colonies of the dwarfer rhododendrons have had every bud nipped off, that the pests have done the same for a Clematis montana covering a large wall, that herbaceous plants are mown down, as if from sheer lust, and that autumn berries are cleared away far more speedily than was ever done by birds, sympathetic readers may perhaps imagine the sort of plague we are up against. I have tapped every imaginable source of information concerning remedies, from the experts of the Ministry of Agriculture down to the village idiot, and am as far off salvation as ever. What has the R.H.S. to offer the many Fellows who must be afflicted as I am? Would not a course of trials in vole and field mouse destruction prove to be an interesting and helpful diversion from, or in conjunction with, the antirrhinums and pansy beds. Slugs and snails have been accorded a good deal of consideration of late, and this has been of incalculable service to thousands. I feel sure that practically conducted experiments directed towards the extirpation of these accursed mice would be welcomed hardly less keenly.—A. T. J., *N. Wales*.

NOMENCLATURE IN NOVI BELGII AND NOVÆ-ANGLIÆ MICHAELMAS DAISIES.

SIR,—I find I have unknowingly perpetrated two "howlers" in the names of Michaelmas daisies in my November articles. In both cases the varieties are named after people. As in the case of letters and the Post Office, I often think how wonderful it is that so few go wrong, so with personal names given to plants the marvel is that so many keep right when they change hands time after time. Unfortunately, errors are very difficult to eradicate. Bulb dealers galore will persist in offering William *Copeland* Darwin Tulip, whereas it is William *Copland*, an old Dutch gardener known to the elder Krelage. While as for the changes that are rung on the Tomasinianus part of Crocus Tomasinianus it would almost take a Senior Wrangler to calculate them.

Is it too late in the case of these Michaelmas daisies to get the names put right? Both are excellent varieties, and, for the sake of the gardening public, and also that honour may be given to whom honour is due—that is, to Mr. W. B. Child, the head-gardener at Purple Beeches, Cobham, who raised them—I am asking the Editor if he will kindly insert this note.

*** "Rev. Nunn" should be Rev. Charles Lunn, who in human form is a clergyman near Rugby, and in asters is one of the very best Michaelmas daisy blues we possess. Oddly enough, there was a Charles Nunn who was a clergyman in Cheshire, so the wrong name might have been the right one.

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The other variety is a Novæ-Angliæ, and I refer to it as Miss Kate Broomhead, whereas the lady's name after whom it is named is Kate Bloomfield. This is an exceedingly fine variety, sharing with Barr's Pink the the pleasing virtue of having flowers which remain open when cut and also on dull days when King Sol hides his face, and which, in addition, display a much brighter shade of rose.—JOSEPH JACOB.

APPLE BLOSSOM WEEVIL.

SIR,—I should be grateful for any advice on the subject of the above pest. Our orchard has now been infested for four years in spite of spraying with the usual winter caustic washes, orchard sprays and, early in June, with arsenate of lead. The trees, to all outward appearance, are in the best of health, good runner growth, clean foliage and plenty of fruit buds formed; but I begin to despair of ever seeing a blossom open or a fruit develop. The stems of the blossoms appear to be eaten through just as the buds are unfurling. When does the weevil lay its eggs in the buds, and would arsenate of lead at that moment cure the trouble?—F. DU CANE, *Maldon*.

ANTHOLYZA PANICULATA.

SIR,—This South African plant is well worthy of the encomium passed on it by Mr. Arnott (page 683), but I think it is better for woodland or wild garden than for the flower border. The brief flowering season, brilliant though it be, is scant compensation for the amount of room claimed for developing the broad blades of foliage. But it is the very thing for lighting up the margin of a woodland glade in late summer, and it possesses some property which protects it from rabbits. They leave it severely alone, just as they do montbretia, which is somewhat remarkable, seeing that both these plants belong to the iris family, whereof many genera are eagerly devoured—all kinds of crocus, for instance.—HERBERT MAXWELL, *Monreith*.

CROPPING A KITCHEN GARDEN.

SIR,—Writing in THE GARDEN of November 28th, "G. I." explained the value of rotation of cropping and successional cropping.

The following successions I have carried out with great success. Ground which had been occupied by Brussels sprouts was marked out and trenched for celery in the spring. Lettuce was grown on the ridges and cleared off before the celery required earthing up.

The following spring the positions of the celery trenches were marked, the ground levelled and a light dressing of dung forked in. Peas (main-crop) were grown on top of the old celery trenches, where they had a good depth of rich soil to root into. Between the peas summer spinach was grown, and in June broccoli were planted out as the spinach and other quick catch crops were cleared.

The treading of the ground in attending to the peas, etc., had made the soil quite firm and in fine condition for the broccoli. I may mention here that by planting early in firm ground we secured sturdy plants which stood the winter without being injured.

The next spring the ground was well dug and manured for main-crop potatoes, and so was enriched and well worked for succeeding crops.

When lifting early potatoes it is usual in many gardens to start at one end of the plot and clear the whole of the ground as one proceeds. In preference to this system I recommend lifting every other row first, thus clearing a space for cauliflowers, etc. This is far preferable to planting between the rows before the potatoes are lifted, as the young plants get more air and are not so likely to be checked as when planted between potatoes—often set closely—and disturbed by the process of harvesting the tubers.

One more point—especially for amateurs—is the drawing up of a cropping plan for next year. One may think this entirely unnecessary, but after watching various allotment gardens for some years I have come to the conclusion that if a cropping plan were drawn up, after careful consideration, fewer mistakes of overcrowding would be made.

Such mistakes as potatoes and runner beans being planted within 12ins. of each other would surely not be made if one sat down and thought out the plan on some quiet winter evening.—N. D. H.

PYROLAS.

SIR,—With reference to the article on "Alpine Bogs," by A. Gavin Jones on page 655 of a recent issue of THE GARDEN and the mention therein as to the impossibility of making the different varieties of pyrola at home in our gardens, I thought it might be of interest to him and to other faint-hearts to hear of the success attained in the cultivation of these charming plants in the garden of a near-by friend. Pyrola rotundifolia and P. secunda are growing in splendid mats, a foot or more across, and several other varieties (including P. incarnata and the allied Chimaphila) are equally happy. They are planted in only partial shade in leaf-mould pockets in a sandstone rock wall. This is not an isolated instance, as I am aware of other cases where varieties of pyrola are perfectly content in their garden home, and do not receive an undue amount of attention.—W. INGWERSEN, JUN., *Sussex*.

BOTANY FOR THE BEGINNER—III

THE ROOT.

IN the previous articles we have discussed the plant cell and the green leaf, and have recognised something of their structure and general utility in the life of the plant. But, according to our definition of a plant, which is composed of leaf, stem and root, the latter two structures still remain to be dealt with. These two organs can be treated in sequence, as they work more or less together, and for the present we will consider the root.

One of the charms of gardening undoubtedly lies in all the mysteries which surround the germination of what is to all appearance a little, lifeless body, called the seed, into a vigorous plant, which may be either a weed of the hedgerows or a monarch of the forest. In the changes which are involved, various organs gradually manifest themselves, assuming their cloak of individuality when they then begin to carry out their respective functions. The first organ to burst from the seed coat and make its *début* in the general scheme of things is a small whitish structure to which the name radicle, or first root, is given. This, every gardener who has watched the change from an ordinary garden pea into a tiny seedling will have witnessed. The radicle, if uninjured, commences to grow downward into the soil, mainly acting under the stimulus of gravity but also to avoid light and in search of moisture and food.

As this little structure develops and grows at the expense of food material stored up in the seed, it increases in length, and this increased length is the result of the division of cells in a special area of the root. As in the leaf, we have an early specialisation of certain cells to fulfil certain functions. This active and growing tissue is not situated, as perhaps might be expected, at the extreme tip of the root, but at a short distance behind it. The reason for this will be readily understood when it is recalled that the root has to burrow through the rough and sharp particles of soil, and hence if the growing cells were at the tip they would be fatally injured. So a protective cap, known as the root cap, surrounds the growing region, to safeguard it from injury as it penetrates the soil and subsoil. The outermost layer of this cap is continually being rubbed off through contact with the soil particles, and at the same time is being replaced by cells produced by the growing region. Then again, if this region were situated in the middle or at the base of the root, the result would be a bending or buckling of the tissue at the tip; so that one realises that these growing cells are in the right spot to perform their function properly. Referring to the cells of the root cap, it may be mentioned in passing that these are covered by a slimy or mucilaginous substance which acts as a lubricant to the root tip and enables it to perform its manifold duties with the greatest efficiency, in much the same way as a touch of oil greatly facilitates the working of a machine. Something in the way of a lubricant is undoubtedly required when the great pressure which roots are capable of exerting, is brought to mind such as the cracking and gradual upheaval of stonework when roots are in contact with a wall.

Before proceeding to deal with the functions of the root, it may be as well to say something of the structure. In outline it is more or less spherical, and is generally brown in colour, save in some cases where it is exposed to light, as in the aerial roots of certain orchids, when it assumes a greenish colour. It has a uniform type of growth, with none of the characteristic divisions of the stem into certain areas which bear no leaves, termed the internodes, and points at which leaves are produced, termed the nodes. This is correlated with the fact that the root bears no leaves or scales, which are in reality rudimentary leaves. In addition it bears, save in the most exceptional circumstances, no buds. It consists of the same elementary organs as the leaf, namely, cells, fibres and tubes. These vary in nature, shape and position according to the functions they fulfil. Here again we have a protective outside

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ayer, an inner tissue composed of cells loosely arranged, while in the centre there is a central strand or core, made up of conducting cells and strengthening cells. These conducting cells serve for the passage of water carrying salts in dilute solution, which is absorbed from the soil by means of delicate structures known as root hairs, produced by the outer protective layer in certain definite areas. The disposition of the strengthening cells is interesting, as it is related to the various strains to which the root is subject. Under the action of strong winds, roots are called upon to bear a longitudinal strain, as they anchor the plant in the soil, and hence it can best meet this tension if the strengthening cells are united in the centre. In a few cases, such as in plants which act as sand binders—*e.g.*, the marram grass—a certain amount of twisting takes place in these cells; but that is wholly an adaptation to environmental conditions. Like the leaf, and as we shall also witness in the stem, most mechanical adaptation in the plant body has arisen to meet the conditions of the surroundings. Such adaptation has been slowly evolved in response to certain factors, while other structures are hereditary and are passed on from generation to generation.

It has already been remarked that the tendency of the root is to get away from light, and in this as in many other respects, it is wholly unlike the stem. It would appear to be urged by some creative force of which we know little. On this hereditary tendency depends the very existence of the plant, as the organism which is to be fed must plunge its roots into the substance where the food material lies. Thus a mistletoe plant pushes its roots into the living branches of the host tree, while an ordinary plant lives an ordinary life and applies to the soil for food and nourishment. With this inherent characteristic to grow downwards, the organ assumes various forms in response to many governing factors. Probably the greatest limiting factor is the shoot system. It will be readily understood that the root and shoot should be in proportion to one another to secure harmonious working. An example will serve to illustrate the point. If we take one of our large forest trees, such as an oak with its mass of heavy boughs, we find that we have present a strong and deep root system by which the aerial parts are efficiently sustained. A few plants, however, have a root system out of all proportion to their stems, a notable one known to every gardener being the carrot, the farmer may think of lucerne and also probably of a tiny weed whose common name speaks for itself, namely, the rest-harrow. These exceptions, however, go to prove the rule. G. C. T.

GARDEN TECHNIQUE

Notes on the Technical Side of the Garden and the Cultivation of Plants.

FLOWERS

MAKING VIOLETS FRAGRANT.

IN cold weather it is often remarked that violets do not smell so sweetly as one would wish. A very good way of bringing out the fragrance of the little purple flowers is on the following lines. Put the violets in a somewhat shallow bowl with water. Now stand this bowl in a dish of good size. Pour steaming hot water into the dish, and then cover the whole with a big box or a dish cover from the kitchen. Leave for twenty minutes and then take out the violets. It will be found that the warm moist air has had a wonderful effect in bringing out the latent fragrance. Some varieties of violet which are not naturally highly perfumed respond to this treatment in a remarkable way.—S. L. B.

BORDER CHRYSANTHEMUMS.

QUESTION.—Should old roots be protected or left exposed during the wintertime?

Answer.—In the northern counties, especially, it is advisable to afford some permanent winter protection to the roots, either by placing dry ashes around them and among the suckers, and also some dry leaves or litter while severe frosts last. A better plan of course, is to lift the old roots every autumn, as soon as the flowers and leaves fade, divide the roots and plant the best parts in a mixture of loam, leaf-soil and sand in a cold frame till the following April. Then transplant them in their flowering quarters, which should, in the meantime, have been deeply dug, cleaned and enriched with rotted manure.

Question.—Is it really necessary to propagate new plants every year? Are such better than the old roots left in the ground to grow naturally?

Answer.—It is advisable to propagate a few cuttings of each variety every winter. Undoubtedly, finer plants and better flowers are grown from cuttings well treated. Old roots always afford more flowers to a clump, but the individual blooms are, generally, smaller and less richly coloured. The next best plan is to lift the roots, divide them, selecting the strongest outside parts, and retain them for a time in a cold frame. This should be done in every part of the country.

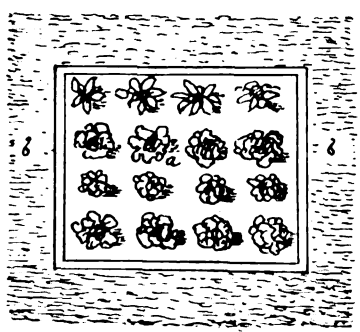
Question.—Will border varieties do as well grown in pots?

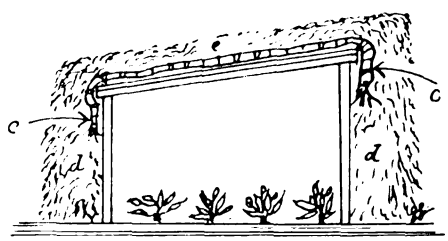
Answer.—No; it is really too hot for the plants in pots at the time of flowering. They may all be so grown, but they need a lot of attention.—GEORGE GARNER.

GREENHOUSE

PROTECTING PLANTS IN FRAMES.

AFTER giving close attention to plants during summer and autumn, we do not wish to lose them in the winter. And the same may be said of seedlings and cuttings placed in the





frames temporarily. During normal winters ordinary coverings will be adequate, but these will be insufficient if very severe weather comes. It is well to be prepared, to have the necessary materials at hand for top coverings and to make the sides of the frames secure at our leisure. I have seen many and varied things used on frosty days at a moment's notice, but not the blanket I was assured a cottager once took off his children's bed to protect some—to his mind—more precious early potatoes. In nearly every garden, or near by, such material as old hay, short straw, hedge bank trimmings and dry leaves is obtainable. About 1ft. from the frame, on each side, drive in a few strong stakes 2ft. apart, one being used at each corner; lay a few branching sticks against these to contain within bounds the dry rubbish packed there tightly; *a* shows interior of frame; *b*, *b*, groundwork of protecting material. On the glass place a mat or mats, their edges coming well over the sides as shown at *c*, *c*, and additional litter is placed on the mat at *e*. As a youth, in many gardens, I had to protect thousands of bedding-out plants in this way in northern counties. The plan always answered, and since, for more than a generation, I have followed it with success. Once tried, this simple way of protecting frame plants will always find favour.—G. G.

GREENHOUSE FLOWERING PLANTS: HOW TO TREAT THEM NOW.

FLOWERING plants are rarely too numerous during the winter months. Those we may possess at the present time, or wish to buy, should be so treated that they will yield flowers freely, pure in colour and over a long period. To this end we should pay very close attention to watering, ventilation, heating and cleanliness: not only cleanliness generally in the structure, but also of every individual plant and truss of flowers, if of this character, on it. We may first refer to zonal pelargoniums. These are splendid all-winter flowering subjects if well treated. Do not despise the single-flowered varieties: they are really first-rate and do not suffer from damping so much as the doubles. But in their case, especially, twice weekly at least, every fading leaf and flower petal should be removed. Of course, in every case morning watering is best; not any repay this attention, however, more than the zonals, and a nice buoyant atmosphere with air circulating about the plants will also do them good. In the case of salvias, all direct draught should be avoided, or the flowers will drop off. The winter-flowering

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begonias require similar treatment: not a high temperature, but careful watering and only a slight difference between day and night temperatures. Cinerarias and primulas, and also cyclamen, may be treated similarly to zonals. Similar treatment will suit libonias, mignonette and Kalanchoe carnea, the libonias being placed in the warmest corner.—G. G.

TREATMENT OF FORCED BULBS IN POTS AND BOXES.

QUESTION.—Bulbs, when grown in pots or boxes and covered with ashes, make a strong growth. How should they be treated when removed from their covering material?

Answer.—The ashes, sand, earth or other covering material used, should be taken off when the empty inverted flower-pots underneath are likely to cause a crippled spike or flower stem if left in position any longer. On a fine day, or when the soil and ashes are not in a frozen condition, remove all the most forward plants to a cold frame and cover the glass at once with mats, or leave larger, empty inverted pots on the growing bulbs for a week or so.

Question.—Why should this be done and why should the bulbs be placed in a cold frame and not in a warm greenhouse direct from the ashes?

Answer.—Because the sudden exposure of the blanched leaves and embryo-like spike of flowers would cause a very severe check, and most likely the flowers would not develop fully and probably also be deformed. The exposure to full light and air should be gradual. Also, the tender growths must be subjected to a warm greenhouse temperature when their roots are more plentiful and their leaves greener; moderate heat will then hasten the flowering and be generally beneficial.

Question.—When and how should pot bulbs be fed?

Answer.—The best time to feed is when the flower buds are well formed, and the ideal way to apply a stimulant is by placing the pots in saucers filled with a liquid manure, leaving the pots so for one night, then empty away any unused liquid. This method of feeding should be attended to twice each week.—GEORGE GARNER.

STOVE PLANTS: THEIR TREATMENT IN WINTER.

ALTHOUGH many kinds of plants requiring a stove temperature were discarded a few years ago, thousands are still cultivated and are being favoured more and more every year. I am referring to the little specimens those that are so useful for decoration, mainly in spring and summertime, and not to monster specimens, such as we used to admire thirty or forty years ago. They make their new growth from March to August and any cleaning that is necessary during that period must be done with very great care on account of the leaves being so tender. It is during the wintertime that a thorough cleansing of the foliage is possible and advisable. The leaves are firmer and insecticides can be used with more safety and much better effect. Crotons, dracænas, palms, Cyperus alternifolius, coleus, Ficus elastica, pandanus, Stephanotis floribunda and similar kinds are liable to infestation by mealy bug and scale. Sponging with tepid water and the insecticides now, will clear them of such pests and all plants so judiciously treated, will make remarkably good progress the following year. The cleaning work should be done in the structure where the plants are growing. To keep them in a healthy condition a judicious damping of the floor every day is advisable as one is obliged to have the pipes fairly hot in adverse weather. The turves, peat and leaf-soil, intended for the re-potting of the plants in spring, should be prepared and stored now.—HANTS.

MISCELLANEOUS

MOSS ON LAWNS.

DURING damp weather patches of moss are very likely to appear on the lawn. These should not be neglected, as the moss is sure to spread and, in quite a short while, it may kill the grass over wide areas. The presence of moss on a lawn is a sign that the ground is waterlogged and deficient in lime. During the winter rake up the affected parts so as to loosen and break up the moss growth. Then apply ordinary builder's slaked lime at the rate of 4oz. to every square yard. Dressings of soot and nitrate of soda, when the weather is open, will often help in discouraging the development of the moss. If the lawn seems really swampy, it is certain that the drainage is defective and steps should be taken to set matters right. Dig a trench right across the lawn from the highest to the lowest point and carefully remove the turf along the opening. In the bottom of the trench, which should be about a foot deep, place a layer of clinkers or broken bricks. Replace the soil and the turves and make everything firm. A trench of this description will drain the soil for a distance of 3yds. on either side. In the case of an extensive lawn, a number of trenches will have to be made. Now and again the shade from trees will induce moss growth on a lawn. Here the spreading branches should be reduced as much as possible, so that the ground beneath may secure more direct sunshine.—LEONARD BASTIN.

TURF.

THERE can be no denying the fact that, for most potting composts, well rotted turf is best. Turf may be cut and stored at any time during winter, and for our purposes it may be stored about a year; a less time may do and a longer time will do good rather than otherwise.

Turf from an old pasture where cattle have been feeding is best. It should be free from weeds and of a light, porous nature Stack it grass-side down and, if wireworm is feared, put some fresh soot between the layers or wet each layer with a liquid fumigant. It is not a wise plan to add manure unless it is known definitely that this will be required as an ingredient of the potting compost.

All readers cannot get turf and many have to take ordinary garden loam. The upper 6ins. of soil is often too rich for potting, and we would prefer skimming it off to get the second spit; this, again, must not be harsh and barren, nor sour and waterlogged.

Old potting compost may be looked upon as exhausted soil, but it has its uses too. Allowed to lie exposed to the air for a time, the "balls of soil" may be broken with the fork and the roots shaken out. The fine compost which remains is an excellent mulch to use in the open for various purposes. It is fine, free and gritty, as a rule.

Soil for composts should always be taken under shelter some time in advance of needs. It then loses excess moisture and potting can be carried out with better results. The outer skin of a turf heap may be discarded or used to build a new heap; the inside of the heap is excellent.—LANARKSHIRE.

R.H.S. Trials of Roses for Garden Decoration at Wisley.—The Director of the Royal Horticultural Society's Gardens at Wisley wishes to remind all raisers of roses of the trials in progress in the Gardens. Six plants of each new variety should be sent to him as soon as possible addressed The Director, R.H.S. Gardens, Wisley, Ripley, Surrey (Station: Horsley, Southern Railway). The necessary entry forms and further information may be obtained from him on application.

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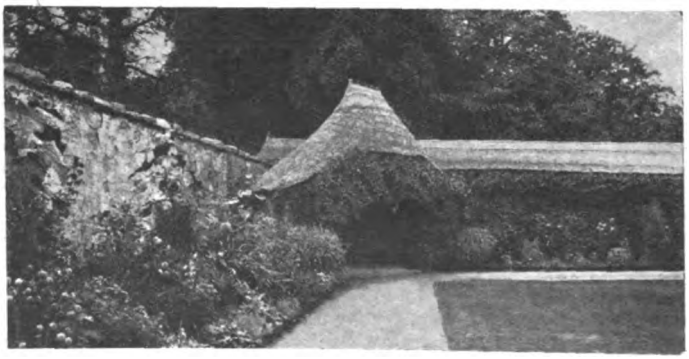

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